

# COMMERCIAL REFRIGERATION & AIR CONDITIONING

AUGUST 1956



Food Warehouses  
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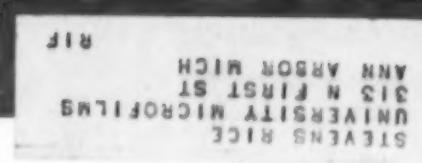
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**SUB-ZERO Temperatures  
have many uses**



MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF  
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

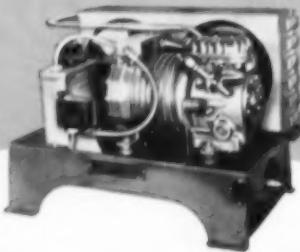
# Copeland QUALITY AND SERVICE KEEP USERS SOLD ON YOUR EQUIPMENT



Third in a series showing how everyone benefits through Copeland's aggressive distribution policy.

## COPELAMETIC THE HERMETIC

The industry leader for rugged dependability. Models for every application. Freon-12 in  $\frac{1}{6}$  to  $7\frac{1}{2}$  H.P.; Freon-22 in 2 to 10 H.P. (High Temperature Only.)



The quality of Copeland motor-compressors

for air conditioning and refrigeration products is world famed. Just as effective in guaranteeing satisfied customers is Copeland's unequalled distribution system. A high-powered Copeland team of 128 wholesalers from coast to coast offers prompt, efficient parts and replacement service to users of Copeland equipment.

With field stocks totaling over \$3,500,000 plus an average of 10 years experience with Copeland equipment, wholesalers can meet any in-or-out-of-warranty requirements promptly . . . with the kind of precision and efficiency you get from the factory itself.

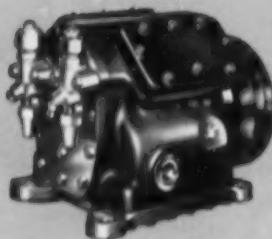
Service like that keeps the customers of over 500 manufacturers of display cases, air conditioners, coolers and other products happy with their Copeland-powered units . . . and ready to purchase more of your products when the need arises.



The industry's newest welded hermetic

## COPELAWELD

provides heavy duty performance at low current consumption. Freon-12,  $\frac{1}{2}$ ,  $\frac{3}{4}$  and 1 H.P. Freon-22 models,  $\frac{1}{2}$  through  $1\frac{1}{2}$  H.P.



## automotive and truck COMPRESSORS

High-speed belt-driven compressors designed specifically for the critical needs of truck and auto air conditioning and refrigeration.



## BELT-DRIVEN condensing units

Superior-engineered units for every refrigeration need.

Remote and self-contained, water and air-cooled models available.

SINCE 1918

**Copeland**  
REFRIGERATION CORPORATION, Sidney, Ohio

WRITE FOR SPECIFICATION AND PERFORMANCE DATA

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# alco thermo valves

SUPER-CHARGED  
FOR STABLE CONTROL

BODY STYLE FOR ANY APPLICATION

## ALCO SUPER CHARGES

Range (Evaporator Temperatures)	Charge Type	Application Examples	Refrigerant				
			Freon-12 †(Yellow)	Freon-22 †(Green)	Methyl Chloride †(Red)	Carrene-7 †(Orange)	Propane †(Black)
Charge Symbol							
30° F. to 50° F.	Gas	Air Conditioning, Water Chillers, Etc.	*85/ MOP FG	*100/ MOP HG	*85/ MOP MG	*85/ MOP CG	*100/ MOP PG
0° F. and Above	New Improved Liquid Charge	Industrial, Commercial, Display Cases, Unit Coolers, Etc.	F	H	M	C	P
0° F. to -40° F.	Low Temperature Cross Charge	Locker Plants, Freezers, Harden- ing Rooms, Cabinets, Etc.	FZ	HZ	MZ	CZ	PZ
"X" CHARGE (ZZ VALVES)							
-40° F. and Below	Ultra Low Temperature Cross Charge	Altitude Chambers, Scientific Equip- ment, Industrial Processing, Etc.	FX	HX			PX

\* The M.O.P. (Maximum Operating Pressures) shown above are standard. Others available upon request.

† Color of nameplate identifies refrigerant.

...straight-through or angle connections...solder or SAE flare.

For all temperature ranges—all operating conditions.

Specify type desired when you order.

SEE YOUR ALCO WHOLESALER

ASK FOR BULLETIN 171-56



ALCO VALVE CO.

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Designers and Manufacturers  
of Thermostatic Expansion  
Valves; Evaporator Pressure  
Regulators; Solenoid Valves;  
Float Valves; Float Switches.

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**UNICON**

**FOR**

**SUPERMARKETS**

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FOR  
BULLETIN U-291

**ONE UNICON  
serves up to 16 compressors  
WITHOUT A DROP  
OF WATER\***

\*UNICON is a Remote-Type Air-Cooled Condenser

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AUGUST, 1956 • COMMERCIAL REFRIGERATION



# \$ELL

an ice making machine  
with real **SALES IMPACT!**

## *Chip-Freeze*

AUTOMATIC ICE FLAKER

A new 560 lb. daily capacity ice flaker that is fast becoming the number one salesmaker in restaurants, bars, hotels, soda fountains, groceries and all retail outlets that want and use ice making equipment. Here is the newest, the most scientifically designed unit on the market today. Easy to operate and trouble free, CHIP-FREEZE is priced below competition. Offer your customers the unit that is making sales history. Sell CHIP-FREEZE, the only ice flaker in its field that provides these outstanding sales features.

• **FOR ECONOMY . . .** Savings up to 95%. A full bushel of crystal clear ice flakes for as little as 2c or 4c per hundred lbs. (depending on local power and water rates). Pay only for the ice that you need. Low installation cost and easy maintenance makes CHIP-FREEZE the most economical unit on the market.



Send for complete  
information and prices!

NO DEEP  
REACHING!  
Sparkling  
pure ice  
is always  
at your  
WAIST LEVEL!

• **FOR CONVENIENCE . . .** New NO DEEP REACHING DESIGN places ice at waist level . . . right at your fingertips for instant serving. Easy to operate, this space saving unit automatically turns itself on and off and is ideal for any water system.

• **FOR SANITATION . . .** No possibility of accumulation of ice that leads to scum, dirt and decay. CHIP-FREEZE produces ice at the top of the unit and enables you to constantly draw clean fresh ice from the lower part of the upper section of the sanitary, stainless steel storage bin. Newly produced ice then falls into place . . . ready for serving.

• **FOR BEAUTY . . .** Beauty pays off in sales appeal. The attractive CHIP-FREEZE space saving cabinet is available in a wide choice of decorator colors to harmonize with any interior. Easy to clean hi-bake enamel finish retains its luster for the life of the machine.

Gentlemen:  
I am interested in knowing more about CHIP-FREEZE Automatic Ice Flaker.  
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Firm: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Zone: \_\_\_\_\_ State: \_\_\_\_\_

**COCORO PRODUCTS**  
**COLD CORPORATION OF AMERICA**

Manufacturers of Ice Making Equipment  
1371-89 N. North Branch St. • Chicago 22, Ill. • MI 2-6816

1906

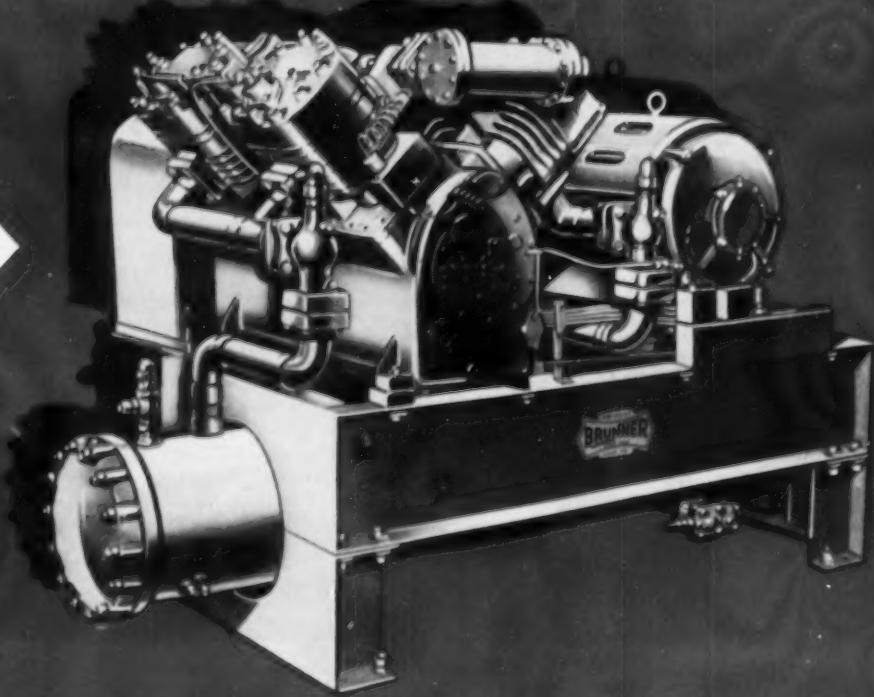


Engineered for mellow moods . . . the foot-powered parlor organ was a popular musical instrument in 1906. It was in 1906 that the first Brunner-engineered product appeared.

TODAY—Brunner engineering serves the industrial refrigeration field with Condensing Units for every requirement.

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THE BRUNNER CO., GAINESVILLE, GA.  
IN CANADA: BRUNNER CORP. (CANADA) LTD., TORONTO, ONTARIO

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frigeration Condensing  
Units for industrial applica-  
tions from 10 H.P.  
through 100 H.P. Also  
from  $\frac{1}{2}$  H.P. to 10 H.P. for  
commercial uses. Brun-  
ner-Matic from  $\frac{1}{4}$  H.P.  
through 3 H.P.



# COMMERCIAL REFRIGERATION & AIR CONDITIONING

## READER'S GUIDE

AUGUST 1956 • VOLUME 13 • No. 8

### FEATURE ARTICLES

- 40 **LET ENGINEERED CONTROLS DO THE JOB . . .** that proved the solution to the twin problems posed by this "king size" low temperature system designed for a West Coast frozen food warehouse.
- 42 **GOING DOWN — GOING UP! . . .** It takes a lot of refrigeration equipment to duplicate at ground level the atmospheric conditions found at 25 miles up. Here's how it's accomplished in a modern high altitude test chamber.
- 45 **PRECISE DEFROSTING CONTROL . . .** was required by the varying demands of the five freezer rooms at this new hospital. Here's how it was provided.
- 46 **STANDARD EQUIPMENT FOR ULTRA-LOW TEMPERATURES . . .** Ingenious engineers have found a way to eliminate the need for heavy-duty compressor equipment in the production of dry ice.
- 48 **EXPERIENCE IS THE BEST TEACHER . . .** so that's why this Pennsylvania dairy plant switched over to air cooled equipment.
- 49 **COOLERS PRESERVE PROTEIN FRACTIONS . . .** of human blood plasma for research conducted in this modern medical laboratory.
- 51 **170 F TO -100 F RANGE . . .** that is the temperature requirement for the motor test chamber which may some day determine how high American rockets will zoom into the sky.

### Air Conditioning Section

- 85 **2 X 5 = 16 . . .** That may be faulty arithmetic, but it accurately describes this hospital conditioning system in which "pre-conditioning" coils are used to enable two 5-ton units to deliver 16 tons of cooling capacity.
- 86 **TAXPAYERS GET THEIR MONEY'S WORTH . . .** from this new civic auditorium, because air conditioning makes it usable in summer as well as winter.
- 87 **A CURTAIN OF AIR . . .** effectively seals the open doorway of a parts cleaning room, thus keeping conditioned air in adjacent areas from being too rapidly exhausted.
- 88 **CENTRAL COOLING WITH WINDOW UNITS . . .** is accomplished in this long, narrow suite of offices by tying two 1½-hp units into 60' of ductwork.
- 90 **ROOM COOLERS — THEY CAN MAKE SENSE FOR HOTEL USE . . .** Operational tests shed new light on such factors as power consumption, operating costs, unit efficiency, power factor, and equipment noise.

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Bending a line into loops to decorate documents became a highly developed art form in 17th Century England.

Bending a line into loops to absorb compressor vibration was accepted practice for years in our AIR CONDITIONING and REFRIGERATION INDUSTRY.

BUT—as equipment was improved installations grew smaller and engineers discovered that flexible hose absorbed this vibration in far less space and with far greater efficiency than any other method devised.

## PACKLESS® Vibration Absorbers

absorbs more vibration in less space by spirally corrugating the wall of seamless drawn tubing, allowing fluid or gas to follow a direct course while absorbing vibration en route.

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immediate attention.



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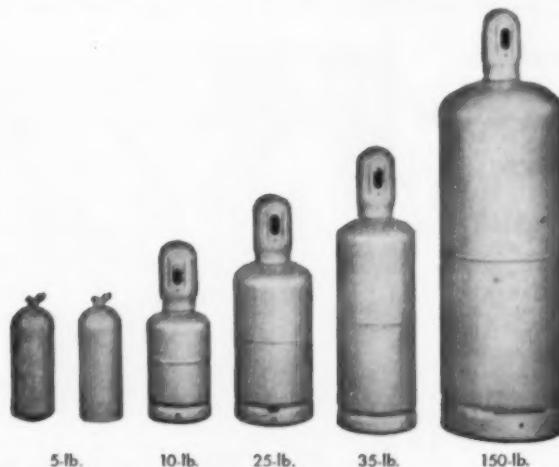
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SETTLE  
FOR LESS**

**use**

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Trade-Mark

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REFRIGERANTS**



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- ✓ Uniform sidewall thickness
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- ✓ They're economical!

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Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. WRITE TODAY for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.

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WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY



New headquarters building of Rotary International at Evanston, Illinois

## Wagner Motors provide quiet circulating pump power at new headquarters of Rotary International

Electric motors that drive heating system pumps need plenty of electrical and mechanical stamina to hold up under the hard, steady grind expected of them. And, they must be unusually quiet, too. Wagner Motors assure this kind of reliable service—and quiet operation.

That's why Bell & Gossett Company, manufacturers of Hydro-Flo Circulating Pumps, chose Wagner Motors for their Universal Pumps used in the new Rotary International Headquarters at Evanston, Illinois.

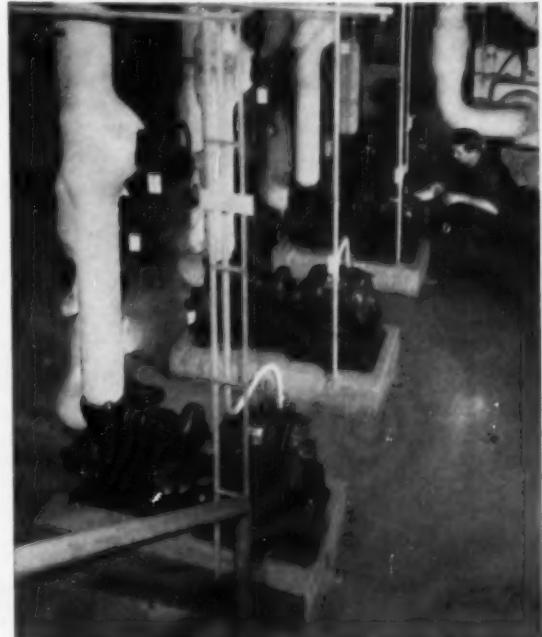
Part of this installation is shown at right. The motors in the foreground are  $7\frac{1}{2}$  horsepower, quiet-type Wagner Polyphase Motors, especially selected for smooth balance and quiet operation. The other motors in this installation are standard, resilient mounted 5 horsepower Wagner Polyphase Motors.

Here's where you can take a tip from Bell & Gossett... when you need dependable, quiet motors—5 horsepower or below—choose Wagner resilient mounted standard motors.

They are available with resilient bases in both sleeve and ball bearing types. You save money—and get the quiet operation that only a specially selected or resilient mounted motor can give.

Perhaps you have a specialized motor application... If so, remember, there's a Wagner motor to fit every need... a complete line for all current specifications with a wide variety of enclosure types and mountings.

Your nearby Wagner engineer can help you select the right motor to meet your specifications. Call the nearest of our 32 branch offices or write us.



These Wagner standard motors, in ratings up through 5 horsepower, can be used for specialized applications because they are available in sleeve bearing or ball bearing models with rigid or resilient mounts.

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suggest  
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to close the  
sale



**T**ODAY the demand on working capital is heavy. To keep their cash and usual lines of credit for current operations, more and more of your prospects prefer to finance their purchases of major equipment. Our tailor-made Refrigeration Equipment Plan can help you

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WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY



New headquarters building of Rotary International at Evanston, Illinois

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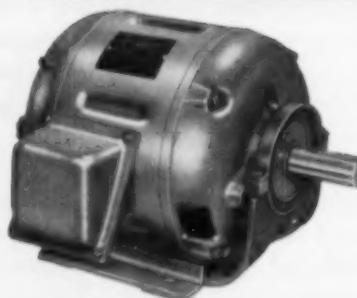
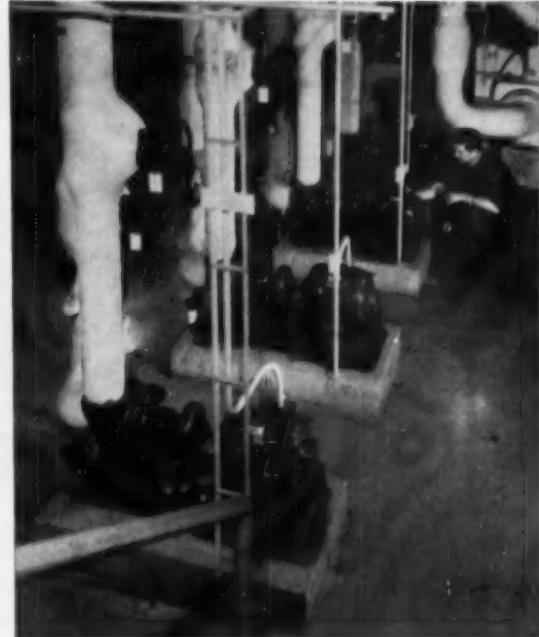
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They are available with resilient bases in both sleeve and ball bearing types. You save money—and get the quiet operation that only a specially selected or resilient mounted motor can give.

Perhaps you have a specialized motor application... if so, remember, there's a Wagner motor to fit every need... a complete line for all current specifications with a wide variety of enclosure types and mountings.

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If your prospect  
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**T**ODAY the demand on working capital is heavy. To keep their cash and usual lines of credit for current operations, more and more of your prospects prefer to finance their purchases of major equipment. Our tailor-made Refrigeration Equipment Plan can help you

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THE BIG BEAR STORES CO. IN COLUMBUS, OHIO, USE STYROFOAM INSULATION IN NEW LOW-TEMPERATURE BUILDINGS

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INSULATION B	✓			✓			
INSULATION C	✓		✓				

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**3** Through superior engineering and design, the Sporlan replaceable core Catch-All achieves large flow

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for  
air conditioning from  
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AUGUST, 1956 • COMMERCIAL REFRIGERATION

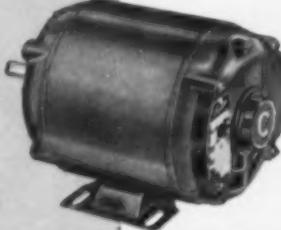
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5-1 P  
June 1956

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56 FRAME  
1/20 to 1 HORSEPOWER

OPEN AND ENCLOSURE TYPES  
PAGES 2 TO 8

MECHANICAL VARIATIONS  
PAGE 7

ELECTRICAL TYPES  
PAGES 9 & 10

EATING AND DIMENSIONS  
PAGE 11

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for your personal copy of  
this informative book

Right at your desk, make a detailed inspection of Century's Fractional H.P. single phase and polyphase line of motors, designed to latest NEMA standards! This fact-filled new book gives you the comprehensive story on Century's new 48-Frame and 56-Frame INDUSTRIAL QUALITY Motors... tells how and why they're better performers than the older models, why they weigh less, take less space, are easier to handle.

Motor types and mountings are described, stator and rotor construction, how to select proper torque and speed... and many other facts to help you choose the right motors for top performance... all along the line!

To CENTURY ELECTRIC COMPANY  
1806 Pine Street, St. Louis 3, Mo.

Please send New Bulletin 1-PI to:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Performance-Rated®  
MOTORS  
1/20 to 400 H.P.



## CENTURY ELECTRIC COMPANY



## Permagum makes a perfect seal every time

Manufacturers and service men alike prefer the positive sealing action they get from Permagum. Used to seal inspection plates, pipe and conduit openings, refrigeration and display cases, Permagum eliminates the host of troubles which condensation can bring down on your head—from just plain heat loss to ruined insulation.

These men are using gray-white Permagum, which is odorless, never hardens, and can be

painted over immediately after application. Since it won't attack insulation, it is ideal for use around electrical wiring, rubber or plastics. Brown Permagum is a heavy-duty sealer which will adhere to any dry surface and remain pliable from 0° to 350°. Both forms come in 2½ lb. and 55 lb. slugs, while gray-white Permagum is also available in 80 ft. rolls of 3/16" cords and 20 ft. rolls of 3/8" cords.

Your wholesaler has Perma-

gum—or write Refrigeration Division, VIRGINIA SMELTING Co., 219 Jefferson, West Norfolk, Va.



ESOTODI+RINETIC CHEMICALS • "TREON" REFRIGERANTS • V-METH-L  
CAN-O-GAS • PERMAGUM • PRESTITE TAPE • KIRKWRAP • SUNISO  
REFRIGERATION OILS • WATER TREATMENT CHEMICALS  
Available in Canada and many other countries



Won't attack electrical insulation.



Seals pipe openings permanently.



Perfected for refrigerator and display cases.

Circle No. 14 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION

# New hospital



QUIET AIR CONDITIONING is especially desirable in hospitals and rest homes. In addition, patients can choose their own degree of comfort.

DETROIT STATLER HOTEL recently installed its first group of AIRditioners.

or  
existing  
hotel...



## Modine AIRditioners are the quiet, fingertip answer to year-round comfort

A TURN of the dial . . . and Modine AIRditioners deliver the desired air-conditioned comfort—quietly, instantly, smoothly. This fingertip control provides personalized air conditioning for hotels, office buildings, apartments, hospitals, motels. AIRditioners assure initial economy, performance and style in new buildings. And they're ideal for remodeling existing ones . . . replacing unsightly radiators with attractive heating-cooling units.

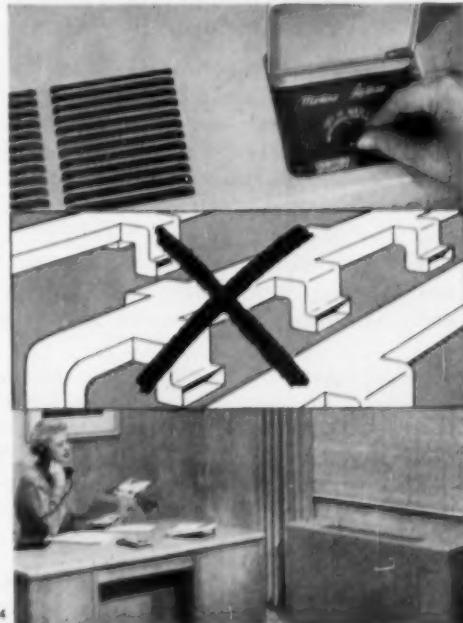
FINGERTIP control permits room occupants to select their degree of comfort.

NO DUCT WORK is needed. AIRditioners use same piping for water supply and return, plus drain . . . cost less to install.

Ask the Modine representative listed in your classified phone book for Bulletin 755—or write Modine Mfg. Co., 1584 DeKoven Ave., Racine, Wisconsin.



A CHOICE of four enclosure types in capacities from 2/3 to 2 tons.



**Modine**

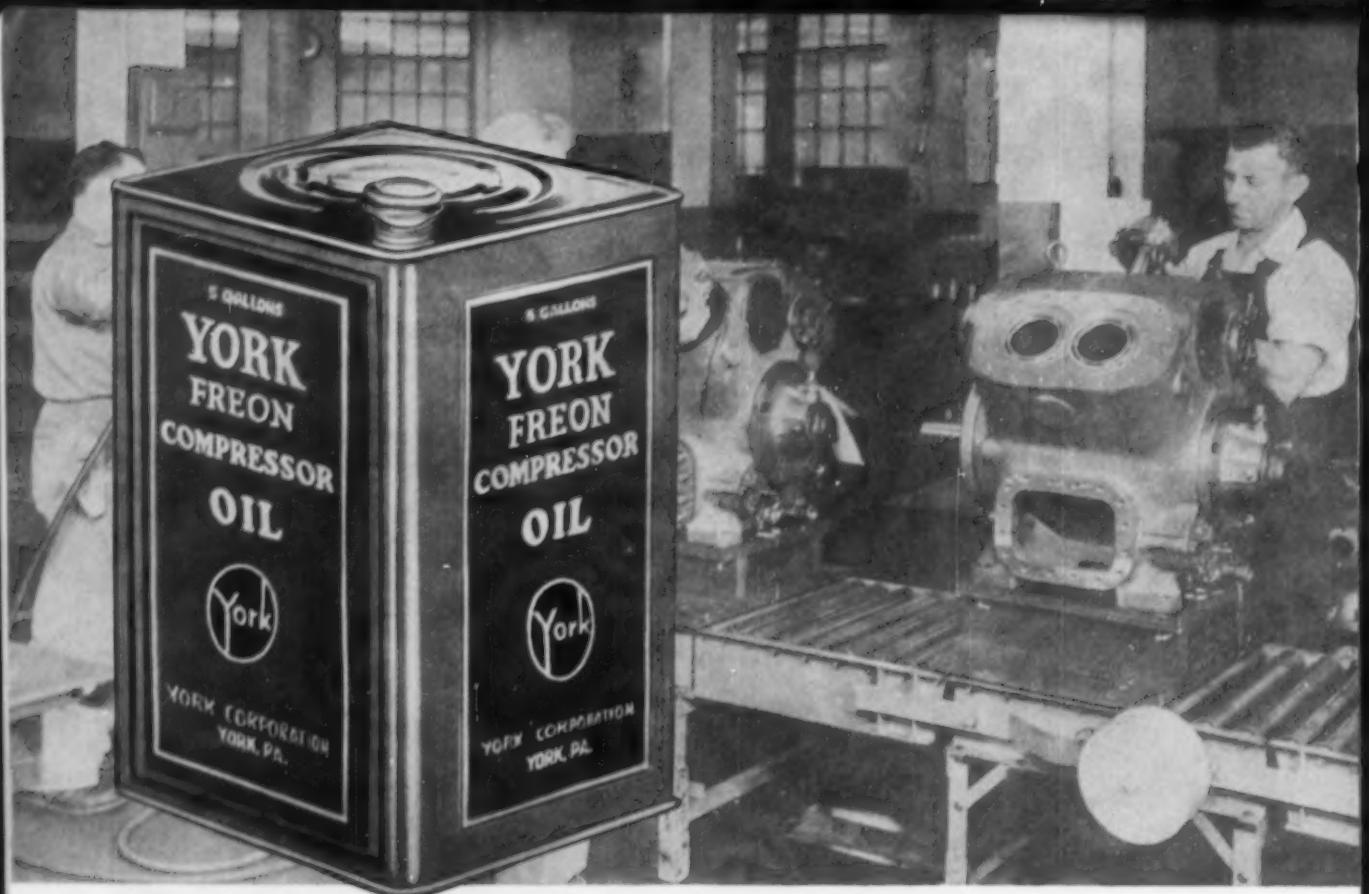
# AIRditioners \*

\*Trademark

In Canada: Sarco, Ltd., Toronto

A-1314

Circle No. 15 on Reader Service Card



Behind York Oil Quality:

## EXPERIENCE in manufacturing compressors

York Compressor Oils are the only oils on the market developed and produced by a leading manufacturer of refrigeration compressors

For over 30 years York has been producing oils specifically compounded and refined for the special requirements of refrigeration and air conditioning equipment. The knowledge and experience gained from these years of service and maintenance for such equipment helps York produce the very best in Refrigeration Compressor Oils. Any make of compressor benefits from their use.

York Oils are super-refined to withstand both high and low operating temperatures and bearing pressures under which they must lubricate moving parts of a

refrigerant compressor. York Oil keeps compressors free of carbon on valves and gummy deposits on piston rings. It is chemically stable, bone dry, won't break down.

All over the world, trouble-free operation of hundreds of thousands of compressors lubricated with York Oils provides overwhelming evidence of York Oils' superior quality and ability to function perfectly under widely varying conditions.

**YORK OIL IS STOCKED AT ALL YORK CORPORATION DISTRICT WAREHOUSES.**

***It always pays to use York Accessories & Supplies:***

AIR FILTERS • AUTOMATIC CONTROLS • BRINE TESTING SETS • CHARGING CONNECTIONS • COILS AND PIPING • COLD STORAGE DOORS  
FREON REFRIGERANTS • GAS MASKS • ICE CANS • ICE PLANT ACCESSORIES • MOTORS • PUMPS • OILS • OIL TRAPS • PURGE DEVICES  
RECEIVERS • SUCTION TRAPS • VALVES AND FITTINGS



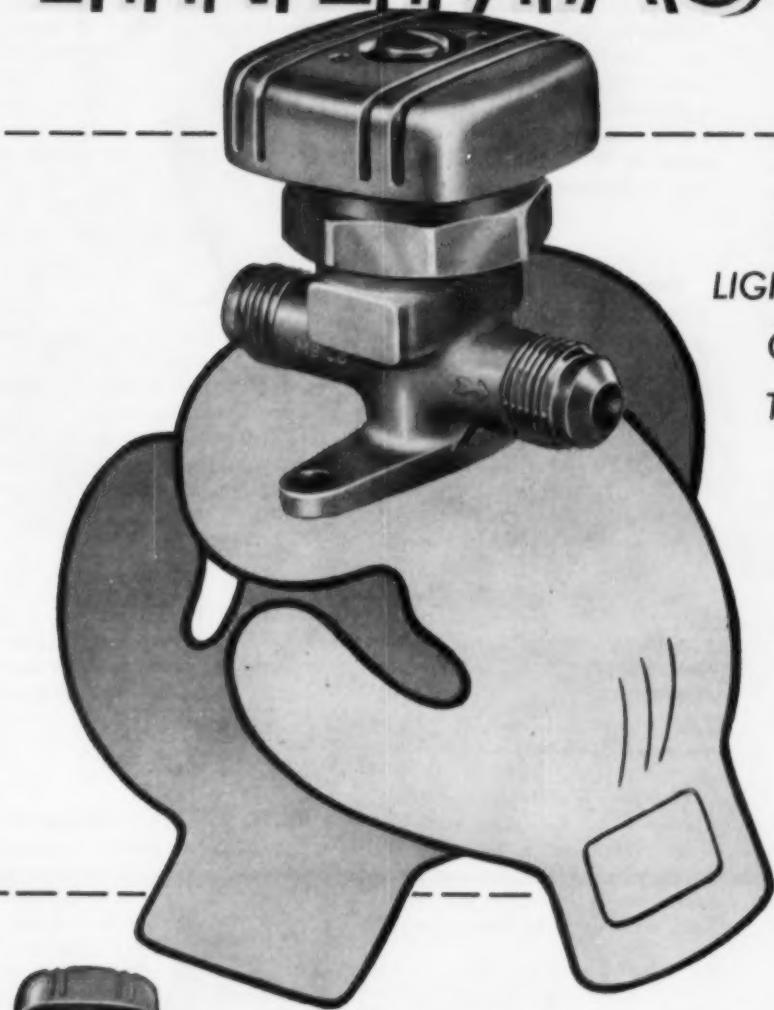
*the quality name in refrigeration oils*

HEADQUARTERS FOR  
MECHANICAL COOLING SINCE 1886

**YORK**  
CORPORATION

INTRODUCING THE MUELLER BRASS CO.

# LINEMASTER



THE NEW  
LIGHT HEAVYWEIGHT  
CHAMPION OF  
THE DIAPHRAGM  
VALVE FIELD!

MUELLER BRASS CO.

cavalcade of champions



#### SUPER-SEATING

A phosphor bronze diaphragm between two stainless steel diaphragms gives the LINEMASTER an unbeatable combination for super-seating and long life. Diaphragms pressure wear tested for thousands of openings and closings without failure.

#### SUPER-SEATING

In the LINEMASTER, tough, resilient molded nylon seat disc insures positive shutoff even if foreign material is lodged against the seating surface. Mueller Brass Co. pioneered and proved the superiority of nylon for "super-seating".

The simple design and sound engineering of this compact forged brass LINEMASTER make it a real heavyweight among "shorty" diaphragm valves. These new LINEMASTERS are solid brass construction throughout . . . even to the comfortable, square design handwheel. Flow passageway is streamlined to eliminate turbulence and provide full-flow. Exclusive triple diaphragms of phosphor bronze and stainless steel furnish leak proof sealing and excellent wear resistant properties. A tough, resilient nylon stem disc operating against a precision finished seat assures positive shutoff. Five straight-thru and angle type LINEMASTERS with flare, solder, and M.P.T. end connections are available. Never before has such a compact valve embodied so many good sound engineering features and been built to such high standards of quality. The LINEMASTER is really a light, heavyweight champion. See the popularly priced LINEMASTERS at your wholesaler's . . . and judge for yourself.

188

**MUELLER BRASS CO.** PORT HURON 10, MICHIGAN

Circle No. 17 on Reader Service Card

← Circle No. 16 on Reader Service Card

MUELLER  
BRASS  
STREAMLINE  
PRODUCTS

# ABOUT PEOPLE

**Hal O. Chamberlain** has been named to the newly created position of manager of zone control sales for Minneapolis-Honeywell Regulator Co. Chamberlain has been assistant sales manager of the company's home products division for the past 18 months. He joined Honeywell as a heating controls sales engineer in 1948.



**Bob McElwain** has been appointed southeast regional sales manager for Bryant. McElwain has his headquarters in Atlanta.

**Elbridge F. Rauscher** has joined Carrier Corp. as manager of new products and their development for the Allied Products Div. For 12 years until 1954, Rauscher was chief product engineer for Easy Washing Machine Corp. Prior to joining Carrier, he operated his own distributing company.



**Frank L. Marshall** has been appointed vice president and general manager of the west coast operation of Aerovox Corp. Marshall, with the corporation since 1946, has been vice president of manufacturers sales for the past seven

years. **Robert A. Hoagland**, sales manager of the New Bedford division, succeeds Marshall as vice president of manufacturers sales. Hoagland formerly was an executive for Jefferson Electric Co. **James Luther** has been appointed vice president of engineering. Luther has been a vice president since 1945 when his company, Luther Mfg. Co., became affiliated with Aerovox. At the same time, **Louis Kahn** becomes technical assistant to W. Myron Owen, president of Aerovox.

viously served in the operational, cost, credit, and sales departments of George Worthington Co., Cleveland, Ohio, distributor.

**Robert L. Gibbs** has been promoted to the position of general sales manager of Mueller Brass Co. Gibbs, formerly assistant general sales manager, has served successively as an industrial engineer in the



production planning department, district manager of the western New York branch sales office at Syracuse, manager of sales promotion and advertising, and as sales manager of the wholesale distributing division, since joining Mueller in 1942.

**Floyd B. Watts**, of Dallas, has joined Sporlan Valve Co.'s field sales organization. Watts previously worked for a large installation firm in Dallas as control engineer. For the present, he will work with J. J. Mays out of Sporlan's Dallas office to expand coverage in the Texas, Oklahoma, Arkansas, and Louisiana area.



**Robert R. Good** has been named regional representative for Bryant in the company's southwest territory. Good has his headquarters in Dallas.

**Charles W. Davis** has been appointed to the sales staff of Bohn Aluminum & Brass Corp. Davis, who has had 14 years' sales experience in the copper and brass field, will cover the Detroit territory.

**R. H. Jones** has assumed his new position as general manager of the air conditioning division of General Electric. Jones formerly was general manager of the G-E low voltage switchgear department in Philadelphia. He joined the company in 1939 as a member of its business training course.



**Ken Burton** has been named assistant sales manager of Acme Electric Corp., in which capacity he will be principally concerned with the servicing of dealer customers in the marketing of transformers and other electrical components distributed through the electrical and refrigeration service trades. Burton pre-

**Dan Phillips** has been appointed metropolitan Toronto salesman and **Edward Knott** has been named salesman for northern Wisconsin and the Upper Michigan Peninsula, for Mueller Climatrol,



Bends as easy as

PIE\*



\* **REVERE**

**DRYSEAL**

COPPER  
REFRIGERATION  
TUBE

**REVERE**  
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801  
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and  
Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.;  
New Bedford, Mass.; Newport, Ark.; Rome, N. Y.  
Sales Offices in Principal Cities, Distributors Everywhere.

Circle No. 18 on Reader Service Card

& AIR CONDITIONING • AUGUST, 1956

Div. of Worthington Corp. Phillips previously did consulting engineering in Canada. Knott will cover the territory north of a line between Sheboygan, Wisconsin Rapids, and Superior.

•

**Robert O. Scheible** has been named assistant sales manager of Sherer-Gillett Co. He joined the company in 1949 as a retail salesman and later was an assistant in the sales department.

Several promotions in the Worthington Corp. engineering department, Harrison Div., have been announced by W. C. Osborne, manager of engineering, Worthington Harrison Div. **E. C. Schmachtenberg**, formerly assistant to the manager of engineering and chief engineer, compressors, has been named assistant to the manager of engineering. **Hunt Davis**, formerly chief engineer, compressor development, has been appointed chief engineer, compressors. **C. A.**

**Macaluso**, previously assistant manager, research and development, has been named assistant chief engineer, compressors. **W. F. Donovan**, formerly group supervisor, research and development, is appointed assistant manager, research and development.

•

**Robert G. Werden** has been appointed North Atlantic district manager of York Corp.

Werden, who will headquartered in New York City, has been industrial sales manager of York's Middle Atlantic district, with headquarters in Philadelphia, for the past 10 years. He has been with the company for 19 years.

•

**M. E. Corbin** has joined Cleveland Hermetic & Supply, Inc., as consulting engineer. Corbin formerly was with Kramer Trenton Co. for seven years. Earlier he had been associated with both Carrier and General Electric.

•

**R. Edwin Moore** has been elected president of Bell & Gossett Co.



Moore, who joined the company in 1927, became vice president in charge of sales in 1934, and was elected executive vice president in 1954. Earl J. Gossett, who has served as chairman and president, will continue as chairman of the board of directors.

•

**Vernon D. Hauck**, formerly factory manager of Friez Instrument Div., Bendix Aviation Corp., has been appointed to the new position of assistant general manager.



## There's nothing like high reserve capacity!



PA<sup>®</sup> 400 has the highest capacity for moisture adsorption under the most adverse conditions in refrigerator operation . . . higher than any other desiccant. This reserve capacity is a safety factor. PA 400 keeps the refrigerator running even though there is sufficient moisture in the system to completely "saturate" other desiccants.

No other refrigeration desiccant gives you as much as PA 400 . . .

- Highest capacity
- Minimum pressure drop
- Physical adsorption not chemical action
- Non-dusting
- Adsorbs acids
- Dries refrigerants to below 2ppm at 120° F.
- Non-deliquescent
- Does not channel

Progress Through Chemistry



**DAVISON CHEMICAL COMPANY**

Division of W. R. Grace & Co.

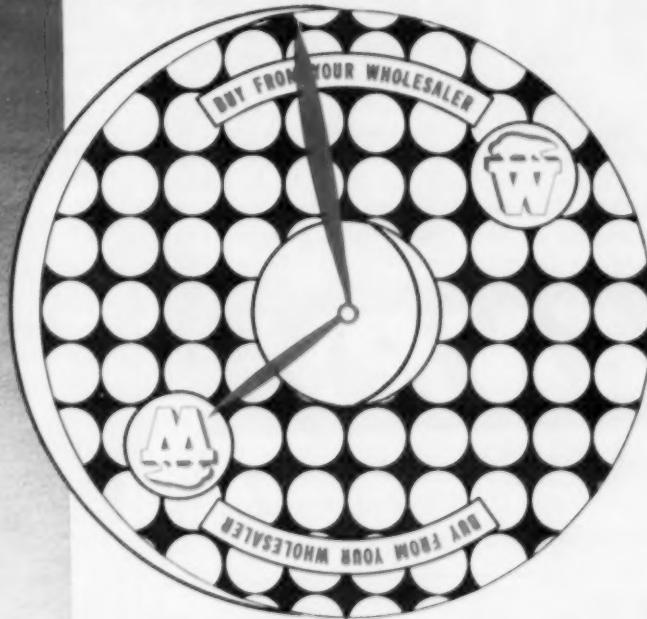
Baltimore 3, Maryland

Producers of Catalysts, Inorganic Acids, Triple Superphosphates, Superphosphates, Phosphate Rock, Silica Gels and Silicafluorides. Sole Producers of DAVCO<sup>®</sup> Granulated Fertilizers.

Circle No. 19 on Reader Service Card



# NEXT TIME



## ASK FOR WOLVERINE ROLL-O-TUBE®

### WANT TO KNOW HOW TO:

- (1) Get more work done every day?
- (2) Get a refrigeration tube seal that seals?
- (3) Get top quality copper refrigeration tube?

It's easy! All you have to do is ask for Wolverine Roll-O-Tube each time you visit your wholesaler.

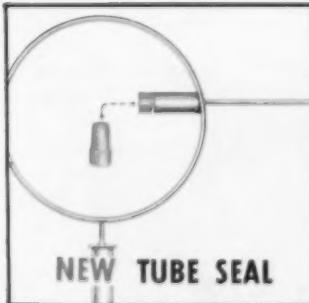
Roll-O-Tube cuts tube handling time. For example try using it as a reel. Just reel out the tube you need and leave the rest in the carton where it's out of the way and protected against damage and dirt. You'll also find that Roll-O-Tube is easy to carry—easy to identify—easy to open.

Then there's Wolverine's new refrigeration tube seal; a plastic plug that can be used again and again . . . allows the tube to be threaded through partitions easily and that positively seals against moisture and dirt.

Wolverine copper refrigeration tube is rigidly quality-controlled, consistent in temper, clean, dry and always easy to bend. All-in-all it's a real deal. That's why we say --ask for Wolverine-Roll-O-Tube—it's the easiest to use.

WOLVERINE TUBE, 1405 Central Avenue, Detroit 9, Michigan.

BUY FROM YOUR WHOLESALER



DIVISIONS OF  
CALUMET & MECLA, INC.  
CALUMET DIVISION  
WOLVERINE TUBE DIVISION  
CANADA VULCANIZER  
& EQUIPMENT CO., LTD.  
FOREST INDUSTRIES DIVISION  
GOODMAN LUMBER CO.

**WOLVERINE TUBE**  
Division of Calumet & Mecla, Inc.  
Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 11 EAST 46TH STREET, NEW YORK 16, NEW YORK.

5371

& AIR CONDITIONING • AUGUST, 1956

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21

er. Hauck joined the radio division of Bendix in 1937, and held supervisory positions before he was appointed chief engineer of Friez Div. in 1942. In 1950, he was appointed general factory manager.

**Lee D. Nutter** has been appointed manager of builder sales, for the General Electric Co. home heating and cooling department. Nutter previously was district sales

representative for the company's air conditioning division in the Chicago area. He joined General Electric in 1937.

**S. E. Sweet** has been appointed executive vice president of Gibson Refrigerator Co., Div. of Hupp Corp. He takes over the position vacated by A. M. Gibson, who died suddenly last May 1. **J. L. Johnson** has been named vice president and general sales manager, and

will direct all commercial sales including private brand and service divisions. **W. C. Conley**, vice president in charge of Gibson sales, has been given the additional responsibility of commercial and residential air conditioning sales. **Earl Palmer** is manager of the commercial and residential air conditioner division. **E. W. Ellingen** has succeeded Sweet as manager of brand sales.

**W. J. McGonigle** has been appointed New York sales representative for Wolverine Tube, Div. of Calumet & Hecla, Inc., replacing **Sam Robb** who has assumed

# HENRY

The most complete line in sizes and types for refrigeration and air conditioning manufacturers, contractors and service men.

## VALVES



PACKLESS



WING CAP



AMMONIA

## DRIERS



NON-REFILLABLE



CARTRIDGE

## STRAINERS



ANGLE



"Y" TYPE

## RELIEF VALVES

STRAIGHT-THROUGH  
AND ANGLE



ASME  
NB National Board  
Certified

**HENRY VALVE COMPANY**

3215 North Ave. • Melrose Park, Ill.

Circle No. 21 on Reader Service Card



W. J. McGonigle



S. Robb

new responsibilities in Wolverine's general sales offices. McGonigle previously was with Downs-Smith Brass & Copper Co. Robb has been with Wolverine for the past 22 years.

**Harry F. Zuba** has been appointed field engineer for the Controls Div. of Jackes-Evans Mfg. Co. in northern New Jersey, New York and New England. Zuba had been vice-president in charge of engineering of the



Tork Clock Co., Inc., Mount Vernon, N. Y. With the formation of his own sales agency, he will continue to represent the Tork line.

**Harvey Lange** has joined Drayer-Hanson as sales application engineer. Lange recently complet-

# INSIDE STORY

on CHASE® Extra-Soft Copper Refrigeration Tube



See this double-crimp! There's one on *both* ends of every coil of superior Chase refrigeration tube. It completely seals off the inside from contamination. Keeps it super-clean and moisture-free—in perfect condition to make highly efficient installations. The double-crimp is same size as the tube. It can pass through any opening large enough for the tube. You can leave it on until final connections are made!

# OUTSIDE STORY

on CHASE® Extra-Soft Copper Refrigeration Tube



These compact, easily-handled cartons serve a double purpose! First, they positively identify diameter of the 50 foot coils inside. Second, they protect the perfect, flat, double-layer coils until you need them. Coils themselves are as clean on the outside as they are on the inside! Smooth, flawless, precisely tempered to just the right degree of softness for easy hand bending. You can make every job a better job with Chase extra-soft copper refrigeration tube.

# Chase

BRASS & COPPER CO.

WATERBURY 28, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

*The Nation's Headquarters for Brass, Copper & Stainless Steel*

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
Baltimore	Cincinnati	Detroit	Kansas City, Mo.	Rockford	Pittsburgh
Boston	Cleveland	Grand Rapids	Los Angeles	Rew Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Baltimore
			Seattle		
			St. Louis	San Francisco	

Circle No. 22 on Reader Service Card

& AIR CONDITIONING • AUGUST, 1956



## It's AEROVOX for MOTOR CAPACITOR HARDWARE, too...

Handle those motor-capacitor jobs quicker, better, surer, more profitably, with Aerovox replacements. For mechanically, as well as electrically, Aerovox means sure-fit units.

So don't waste your precious time improvising mountings or housings. Don't take chances on call-backs. Instead, take advantage of Aerovox motor-capacitor hardware as listed in the latest Aerovox catalog.

### GET THE AEROVOX REPLACEMENT GUIDE . . .

Contains an entire section on air-conditioning capacitor replacements — for the first time anywhere! Also latest data on motor-starting principles and practices; motor capacitor listings; motor types with capacitor requirements; test equipment; etc. Available only from your Aerovox distributor. Write for name of your local distributor.



**AEROVOX CORPORATION**

Distributor Sales Division

NEW BEDFORD, MASS.

SALES OFFICES IN ALL PRINCIPAL CITIES

In Canada: AEROVOX CANADA, LTD., Hamilton, Ont.

Export: Ad. Auriema, 89 Broad St., New York, N. Y. • Cable: Auriema, N. Y.

Circle No. 23 on Reader Service Card

ed a two-month special projects assignment in the company's design-development section, and has been transferred to the commercial division. Previously, he was with Paul Hardman Co., Inc.

**O. E. Mountz and W. A. Jaquay** have been named district sales managers of McCray Refrigerator Co., Inc.



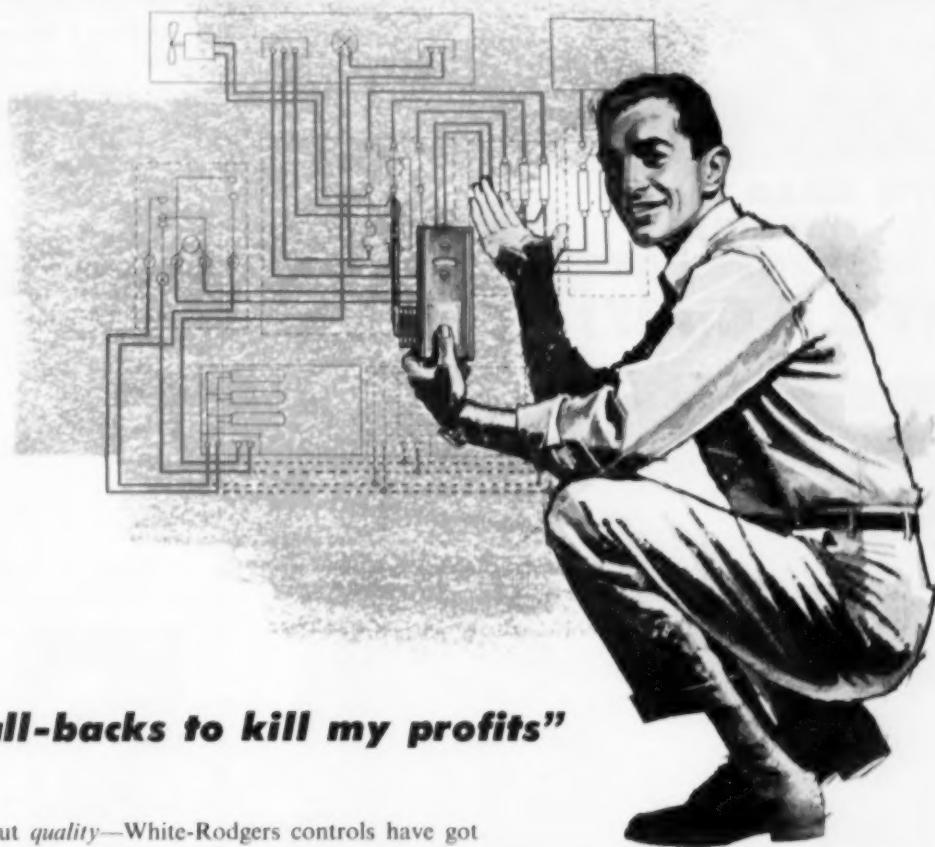
O. E. Mountz

Mountz, with McCray for six years, has been in the sales department as home office contact with distributors in the south central states since 1953. His assignment will be in this territory. Jaquay started with McCray in 1951 in the store planning department. In 1953, he was transferred to the Chicago branch but returned to the home office in 1954 and assumed the duties of sales correspondent. He now will take over the northwestern states.

**Robert E. Drury** has been elected vice president and assistant secretary of the Redmond Motor Co., Owosso, Mich., manufacturers of fractional horsepower electric motors. According to J. W. Tweedy, president of Redmond, Drury will also continue to be director of manufacturing.

Utility Appliance Corp., has promoted **Stanley F. Skafte** to the newly created position of director of engineering for all the company's products. Skafte, a director of the company, was formerly director of sales for the heating and air conditioning division. At the same time the following promo-

WHITE-RODGERS CONTROLS FOR MODERN REFRIGERATION



**"No call-backs to kill my profits"**

"Talk about *quality*—White-Rodgers controls have got it! They keep our customers happy—and keep us out of trouble! No matter how rugged the job, White-Rodgers controls have never let me down."

For remote temperature control of vital commercial and industrial installations such as refrigerated storage rooms, display cases, cabinets, walk-in boxes, or blood banks, the envied Quality of White-Rodgers controls with exclusive Hydraulic-Action tells its own story . . . with positive performance . . . and long service life.

Type 1609-12 is the pinch-hitting king of the control world. With its range -20 to +50° F., Adj. Diff. 3 to 25°, 5 ft. capillary with  $5\frac{1}{4} \times \frac{1}{8}$  inch bulb, it can step in and handle practically any emergency. No wonder so many wise servicemen always keep several on hand ready to take over where "ordinary" controls just can't do the job.



**WHITE-RODGERS Controls for Modern Comfort**  
HEATING • REFRIGERATION • AIR CONDITIONING

ST. LOUIS 6, MISSOURI • TORONTO 8, ONTARIO

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& AIR CONDITIONING • AUGUST, 1956

WHI-51

# WHICH IS A CUBE?



NO. 1



NO. 2



NO. 3



NO. 4



NO. 5



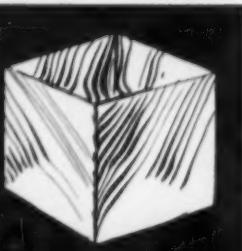
NO. 6



NO. 7

ANSWER: NO. 6 BY WEBSTER'S DICTIONARY

IT'S CLEAR  
IT'S SOLID  
IT'S HARD  
**IT'S A CUBE!**



- New patented flow principle washes the surface of cubes being frozen . . . washes away all minerals, solids, air . . . guarantees crystal clear, solid cubes.
- Water circulating system uses approved plastics . . . no clogging . . . no tainted flavor in cubes.
- No float valves to stick . . . no danger of floods . . . trouble-free performance.

FEW  
MOVING PARTS . . .  
EASILY ACCESSIBLE  
. . . WE'VE KICKED  
THE DAYLITES OUT  
OF SERVICE PROB-  
LEMS!

WRITE FOR DESCRIPTIVE LITERATURE AND PRICES  
KOLD-DRAFT DIVISION

**UNIFLOW MANUFACTURING COMPANY**  
EAST LAKE ROAD - ERIE, PENNSYLVANIA

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\*TRADEMARK REG. U. S. PAT. OFF.

We Pump ♦ We Soften ♦ We Filter ♦ We Cool ♦ We Freeze ♦

WE KNOW !  
WATER !

Circle No. 25 on Reader Service Card

tions also were revealed: Charles F. Cushing, from merchandising manager to director of sales, heating and air conditioning division; Richard J. Petersen, from chief engineer to manager of research and chief engineer, utility divisions; and Clifford D. Mohr, from senior engineer to chief engineer, range division.

•  
Sidney J. Siegel has been named to the newly created position of assistant national sales manager of Fogel Refrigerator Co. Siegel will assist Henry Robinson, national sales manager. He also will continue as sales manager of the newly formed shelving division.

•  
Robert T. Clark has been appointed sales representative for the



Janitrol Heating and Air Conditioning Div. of Surface Combustion Corp. in the St. Louis territory. His office will be located at 2330 Hampton St. Clark was previously associated with the Mercury Div. of the Ford Motor Co.

•  
Thomas Zurick has been appointed Indiana sales representative for Marsh Instrument Co. Zurick will contact original equipment manufacturers and refrigeration wholesalers. He has been associated with the Marsh sales staff since 1954.

•  
John L. Stewart has been appointed west coast heating and air conditioning specialist for Permaglas Div., A. O. Smith Corp. With headquarters in Oakland, Calif., he will cover a nine-state area. Prior to joining A. O. Smith, Stewart headed his own firm of manufacturers' representatives.

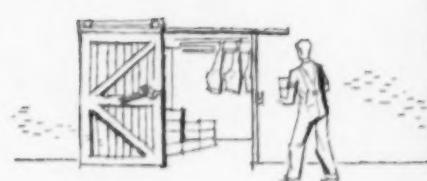
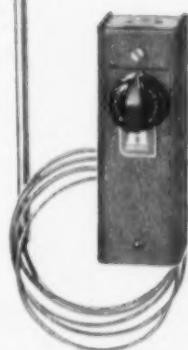
*Now, greater dependability and flexibility in all your heating-cooling applications—at a new low in cost!*

# New Honeywell line of temperature controllers

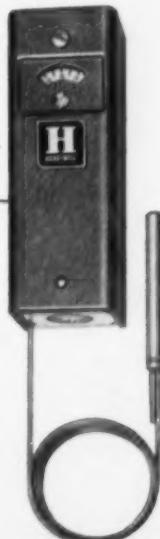


**The L6018, for temperature control in air conditioning units**—For window air conditioners, store units, all general air conditioning applications. Available with extended shaft and knob with or without case.

Your choice of Model L6018A Unit Thermostat with single pole, double throw action; L6018B Change-over Thermostat with double pole, double throw action; L6018C Change-over Thermostat with single pole, double throw action.



**The L6021, for temperature control in refrigeration—liquid, surface or air**—For frozen food cases, beverage dispensers, ice cream cabinets, soda fountains, ice-making units, meat and vegetable display cases, and for general refrigeration applications.



HERE'S a new kind of economical and reliable temperature control for air, surface and liquids—the L6018 and the L6021 remote bulb temperature controllers. Honeywell developed them to give you low-cost dependability. And their built-in versatility means you can satisfy a wide range of uses—and simplify inventories, too.

*Never before has a low-cost temperature controller given you so many plus features*

- Fast-acting response
- Trouble-free enclosed MICRO SWITCH
- Close temperature control
- Sturdy, compact design
- Smaller remote bulb
- Easy to install

For complete information on the L6018, L6021, or any of our complete line of heating-cooling controls, call your local Honeywell office. Or write Honeywell, Dept. CR-8-171, Minneapolis 8, Minnesota.

MINNEAPOLIS  
**Honeywell**



*First in Controls*

*112 offices across the nation*

EASY STACKING



QUICK AVAILABILITY

SIMPLIFIED STOCKING

FAST SELLING

# NEW Fluidyne® REDI-PAK

END-SUCTION PUMPS

*You can profit from this modern Peerless Pump  
MERCHANDISING IDEA*

**THIS PRACTICAL PEERLESS SALES IDEA**  
will simplify your end-suction pump buying and installation  
service and increase your profits too! Here's how:

The 22 models of end-suction pumps that Peerless has pre-  
packaged fit 8 out of 10 integral hp end-suction pump  
applications; *that means simplified stocking*.

All pumps are *Redi-Packed* in reinforced cartons; *that means  
easy stacking*.

Peerless carries ample stocks of all sizes; *that means quick  
availability*.

Correct pump applications are quickly made from performance  
curves; *that means fast selling*.

**READ ABOUT IT IN OUR NEW REDI-PAK BULLETIN**

**PEERLESS PUMP DIVISION**  
FOOD MACHINERY AND CHEMICAL CORPORATION  
301 WEST AVENUE 31, LOS ANGELES 31, CALIFORNIA



Factories: Los Angeles 31, California and  
Indianapolis 8, Indiana

Offices: New York; Atlanta; Chicago; St. Louis;  
Phoenix; San Francisco; Fresno; Los Angeles;  
Plainview and Lubbock, Texas; Albuquerque.

Distributors in Principal Cities.  
Consult your Telephone Directory.

\*  Please send me Peerless Redi-Pak Pump Bulletin No. B-2319

NAME \_\_\_\_\_ COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ CRAC

## FACTUAL reasons

why

*Curtis*

dealers

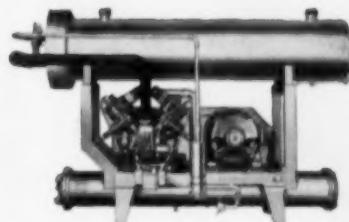
can make more money—  
CONSISTENTLY:



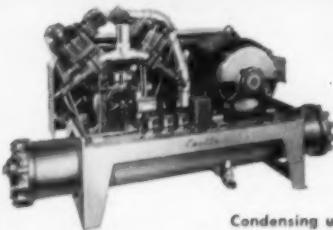
Evaporative Condensers  
and Cooling Towers  
up to 100 tons.  
Air handling units to match.



Condensing units  
up to 100 tons—  
F-12 or F-22.



Packaged Liquid Chillers—  
7 1/2 to 100 tons—F-12 or F-22.  
With room console units  
to provide controlled cooling and heating  
without duct work.



Packaged units  
in a rainbow  
of colors—  
a CURTIS exclusive.  
3 through 50 tons.



Packaged  
Air Cooled  
Air Conditioning Units—  
2 through 7 1/2 tons.  
Residential and  
Commercial applications.

Remember  
YOU CAN COUNT ON

*Curtis*

MANUFACTURING COMPANY  
REFRIGERATION DIVISION • 1915 Klienlen Ave., St. Louis 20, Mo.



1854-1956  
102<sup>ND</sup> year  
OF SUCCESSFUL MANUFACTURING EXPERIENCE

CM-11

Circle No. 28 on Reader Service Card



...SO HALSTEAD & MITCHELL ENGINEERS SAID  
**'LET'S STOP  
COOLING TOWER RUST'**

The man shown above is using live steam to remove every vestige of dirt and scale prior to applying Halstead & Mitchell protections which withstand both rusting and *all* present day water treatments normally recommended for cooling towers and condensers. These unusual protections are used *only* on Halstead & Mitchell's Cooling Towers.

First protection is Vinsynite. Vinsynite works twice—it phosphates the metal, stopping rust dead in its tracks, and it forms the perfect adhesive base for paint coats to follow.

Vinyl Zinc is then applied, and vinyl paints have made their reputation because they are tough, flexible, inert and water resistant. Water vapor is locked out as the Vinyl Zinc locks to the underlying Vinsynite.

Third protection is chlorinated rubber, a paint which forms a thick film. Adequate film thickness is important when contact with water and high humidity is unrelenting, as in cooling tower service. Chlorinated rubber is also noted for its toughness and water resistance.

**WOOD ROTTING, TOO,  
CAN BE STOPPED!** We do more than praise the long life of wood used in our wetted decks—we are the only manufacturer who offers a 20-Year Guarantee on wetted deck wood against rotting or attack by fungus!

**Halstead & Mitchell protections are more than painted on.** They are hydraulically forced into every nook and cranny of every Halstead & Mitchell Cooling Tower so that no spot can ever be left unprotected as a starting point for rust. The combination of heavy film, vapor seal, toughness and tremendous adhesion offer protection against corrosion matched by no other manufacturer.

*Want Details on the Widest Selection in Cooling Towers?*  
COMMERCIAL • INDUSTRIAL • RESIDENTIAL • TAKE-APART • CENTRIFUGAL

Write Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.  
Or See Your Leading Wholesaler

**HM**  
*Halstead & Mitchell*

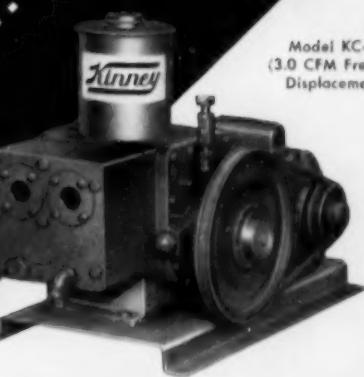
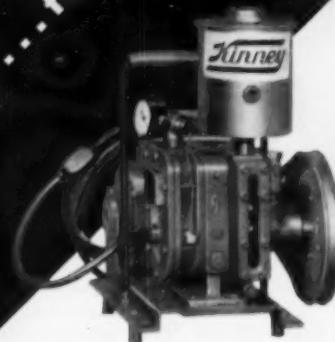
## FOR SERVICING

- refrigeration units
- air conditioning units

## MAKE YOUR VACUUM

**PORTABLE . . . for profits!**

Model KC-8R  
(8.2 CFM Free Air  
Displacement)



Model KC-3R  
(3.0 CFM Free Air  
Displacement)

## SERVICE SHOPS! SERVICE ENGINEERS!

You can duplicate . . . with portable units . . . the most exacting charging specifications required to properly service industrial installations of this type . . . by specifying Kinney units. These new compound, high vacuum pumps (Models KC-3R and KC-8R) are compact, easy to service, and extremely reliable. They provide lower pressures at faster pumping speeds and more rapid recovery rates than single stage models can possibly supply.

*Act Today!*

Request Bulletin 403 for complete data, pumping speed curves, etc. Send all your vacuum equipment requirements to our engineers for analysis and speedy recommendations. Profit from our wealth of experience as the leading manufacturer of vacuum pumps and allied equipment. Contact one of our competently staffed district offices . . . in Baltimore, Charleston, W. Va., Charlotte, Chicago (La Grange), Cleveland, Detroit, Houston, Los Angeles, New Orleans, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis — or The International Sales Office, 90 West St., New York 6, N. Y.

**KINNEY** MFG. DIVISION  
THE NEW YORK AIR BRAKE COMPANY

601B WASHINGTON STREET • BOSTON 30 • MASS.

INTERNATIONAL SALES OFFICE, 90 WEST ST., NEW YORK 6, N. Y.

- Please send Bulletin 403 describing the Kinney line of air-cooled vacuum pumps.

Name \_\_\_\_\_ Title \_\_\_\_\_

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Street \_\_\_\_\_

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Circle No. 30 on Reader Service Card

**CUT YOUR CUSTOMERS'  
ICE COSTS FROM  
DOLLARS  
to DIMES**



*Crystal Tips  
or Chips*

AUTOMATIC ICE MAKER

You can prove it to your prospects' complete satisfaction: "Crystal Tips or Chips Automatic Ice Makers save up to 90% on the costs of delivered ice. The famous 2-in-1 feature gives you Tips in 'cube' size, or by the turn of the knob, Chips in crushed ice size. All the most advanced engineering features are built into this compact, smartly designed unit—quiet operation, full 24-hour storage bin capacity, and a simplified mechanism assuring long trouble-free operation." Territories are available. Write for information.

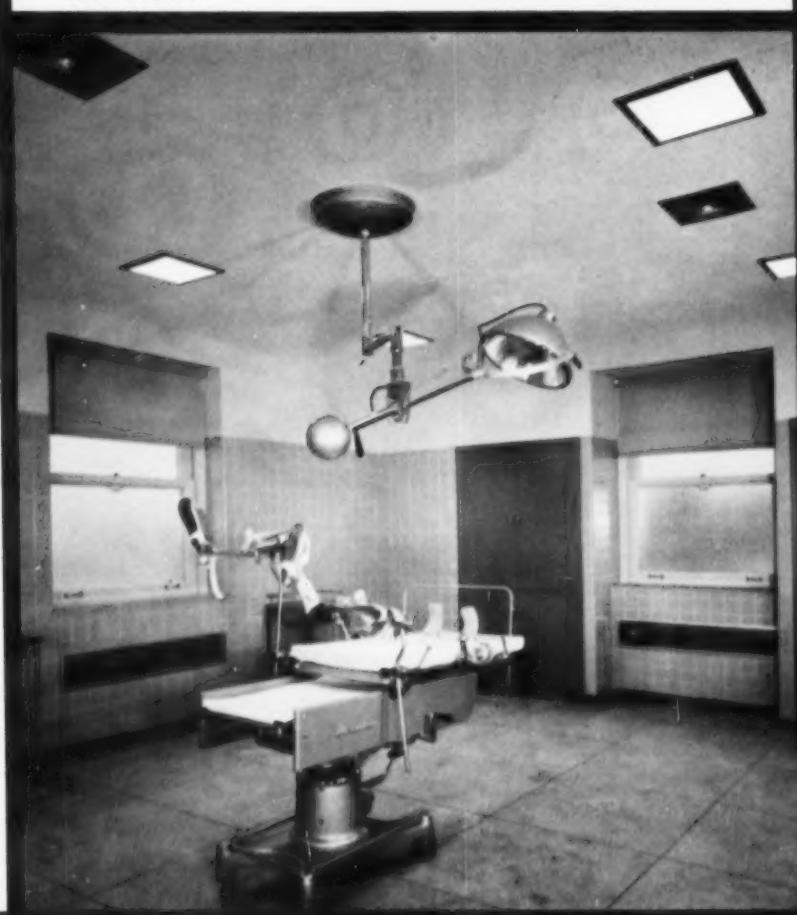
**AMERICAN AUTOMATIC ICE MACHINE CO.**

1793 Fourth Street N. W., Faribault, Minn. • A Subsidiary of McQuay, Inc.

IN CANADA, ADDRESS: PIONEER APPLIANCE SERVICE, LTD., BOX 181, WESTON, TORONTO, ONTARIO.

Circle No. 31 on Reader Service Card

Circle No. 32 on Reader Service Card →



▲ To provide draftless air diffusion in the delivery room, All-Air High Velocity units are placed under the window. High velocity sound attenuation chambers with square diffusers are mounted in the ceiling. Turn page for detail.

▼ In the nursery for premature infants, sound attenuation chambers with square air diffusers are mounted in the ceiling. Turn page for detail.



▲ All-Air High Velocity under-the-window units are used in all private and semi-private patients' rooms. Turn page for detail.

# *A new high in* **high** **velocity** **for** **hospitals**

New wing of Abington  
Memorial Hospital, Abington, Pa.

Architects & Engineers:  
Jack Steele Company, Philadelphia, Pa.  
Schmidt, Garden & Erikson, Chicago, Ill.

Air Conditioning Contractors:  
Huffman-Wolfe Company,  
Philadelphia, Pa.  
Paul A. Norair, Washington, D. C.

Here are shown applications of the Anemostat All-Air High Velocity air distribution system in the new wing of the Abington Memorial Hospital.

The trend towards Anemostat All-Air High Velocity Systems is growing rapidly. The Anemostat All-Air High Velocity air distribution system can be used with smaller than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. These units save space when installed in hospitals, office buildings, department stores, banks, schools, factories and other structures.

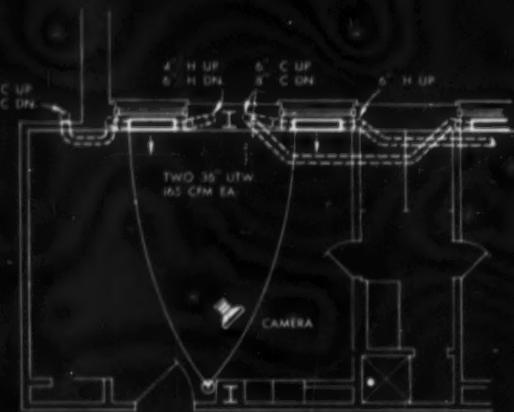
#### ARCHITECTS—Attention Please:

Anemostat round, square and straightline diffusers with high velocity units complement a wide variety of architectural designs.



Write on your business letterhead for 1956 New Products Bulletin and Selection Manual 50

#### Patients' room



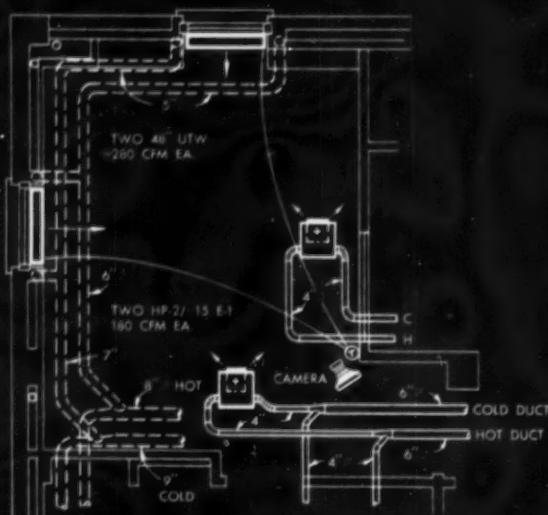
**ANEMOSTAT®**  
DRAFTLESS Aspirating AIR DIFFUSERS  
ANEMOSTAT CORPORATION OF AMERICA

10 East 39th Street, New York 16, N. Y.

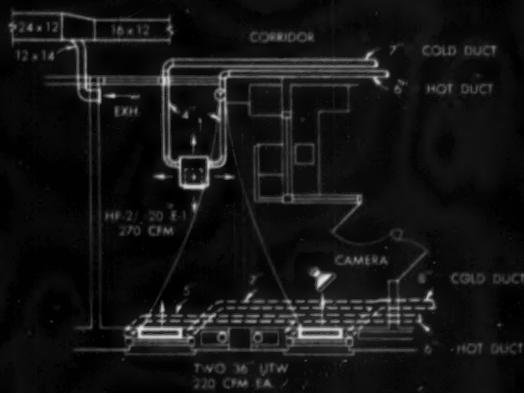
REPRESENTATIVES IN PRINCIPAL CITIES

*The Pioneer of All-Air High Velocity Systems*

#### Delivery room



#### Premature Nursery





## Seeks Further Details On Service Contracts

EDITOR:

In your May issue of COMMERCIAL REFRIGERATION & AIR CONDITIONING I read a very interesting article regarding a concern by the name of A. S. Johnson Co. of Washington, D. C.—“5000 Service Contracts—And At A Profit”.

I am very much interested in writing to them for more specific information regarding their contracts, therefore, I would appreciate it if you would mail to my attention their complete address.

GEORGE A. DION  
Howard-Arnold, Inc.,  
New Haven, Connecticut

The complete address of the A. S. Johnson Company is 1240 9th N.W., Washington, D. C.

\* \* \*

## We All Have Our Problems!

EDITOR:

We acknowledge with thanks receipt of your letter dated May 10, 1956, and are pleased to advise you that we had received in the meantime your subscription acknowledgement as well as the first copy of your magazine. We suppose that the delay in receiving your magazine was due to the somewhat irregular working hours of our local post offices during the month of Ramadan.

MAHOMMED ABDUL GYAMED  
Al-Alamaan,  
Jeddah, Saudi Arabia

\* \* \*

## G-E Requests Reprints For Dealer Instruction

EDITOR:

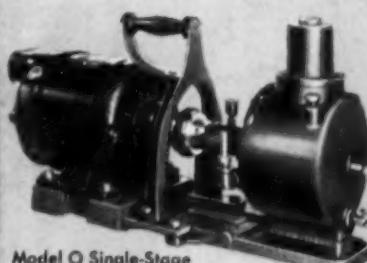
The General Electric Weathertron Department would like permission to reprint the article titled, “How to Build a Profitable Merchandising Program” which appeared in the May, 1956 issue of COMMERCIAL REFRIGERATION & AIR CONDITIONING.

If permission is granted, we plan to print about 300 copies of the article.

Continued on page 107



Model A Two-Stage Pump—Vacuum, blank flange: 1/10 mm, 2.5 CFM, 1/3 HP, Weight 80 lbs.



Model O Single-Stage Pump—Vacuum, blank flange: 1 mm, 1 CFM, 1/6 HP, Weight 48 lbs.

For evacuation of refrigeration equipment on a production basis,

there are larger Beach-Russ Pumps of comparable performance.

## Reasons Why Servicemen Prefer BEACH-RUSS Portable Vacuum Pumps

for Dehydrating and  
Testing Refrigeration  
and Air-Conditioning Work

- 1 High Performance Characteristics
- 2 Automatic Lubrication
- 3 Quiet Operation
- 4 Minimum Attention
- 5 Valves Eliminated
- 6 Single- or Two-Stage
- 7 Long Service Life
- 8 Completely Portable

**BEACH-RUSS COMPANY**  
50 Church Street • New York 7, N. Y. • Dept. 56

Send descriptive literature covering:  Model O Single-Stage Vacuum Pumps  
 Model A Two-Stage Pumps  
 Beach-Russ Production Line Vacuum Pumps

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE No. \_\_\_\_\_ STATE \_\_\_\_\_

Circle No. 33 on Reader Service Card

# TIGHT-SPOT *drilling*

calls for



HEAVY-DUTY

TRI-SPEED

## Right Angle Drills

Angle-head swivels full 360°, lockable in any position. Removable for straight-on drilling.



Model S-412 or S-512 \$79.00

3 SPEEDS — Straight-on, Low, High			
Model	RPM Straight-on	RPM Low Side	RPM High Side
S-412 RAD	450	300	675
S-512 RAD	320	215	480

Ball and Roller Bearings throughout. Weight only 9 lbs.

## Fatigue-Free Drilling in Wood, Metals, Masonry, Composition, Etc.

Plumber's Kit \$93.75



Ruggedly-built and powered with Milwaukee full 1/3 HP, 115V, heavy-duty AC-DC Motor, the new, improved MILWAUKEE RIGHT ANGLE DRIVE Drills provide dependable power and versatility to cope with every tight-spot heavy-duty drilling job.

Complete Plumber's Kit, as illustrated, contains your choice of the S-412 RAD or the S-512 RAD 1/2" capacity heavy-duty drill, 1 1/2" Auger Bit, 2-9/16" SELFED BIT, Utility Wrench, Chuck Remover Pin and Steel Carrying Case.

## SELFED BIT-KIT for Big Hole Drilling



Wide use of Milwaukee Right Angle Drills for "big hole drilling" has made the Milwaukee



Milwaukee SELFED BIT

Selfeed Bit-Kit a popular companion to the RAD. It includes 7/8", 1 1/8", 1 1/4" and 1 1/2" Auger Bits . . . famous Milwaukee SELFED BITS in 1 1/4", 2-1/2" and 2-9/16" diam. sizes . . . also 5 1/2" hex. extension shank with coupling, extra twin head feed screw pilot, Allen wrench, and SELFED BIT sharpener guide.

COMPLETE KIT, \$52.50

Write today for FREE Folder RAD-5. Address . . .

**MILWAUKEE ELECTRIC TOOL CORP.**

5310 W. State St. • Milwaukee 8, Wis.

General Distributors: MATTHEW MOODY & SONS, Montreal

Circle No. 91 on Reader Service Card

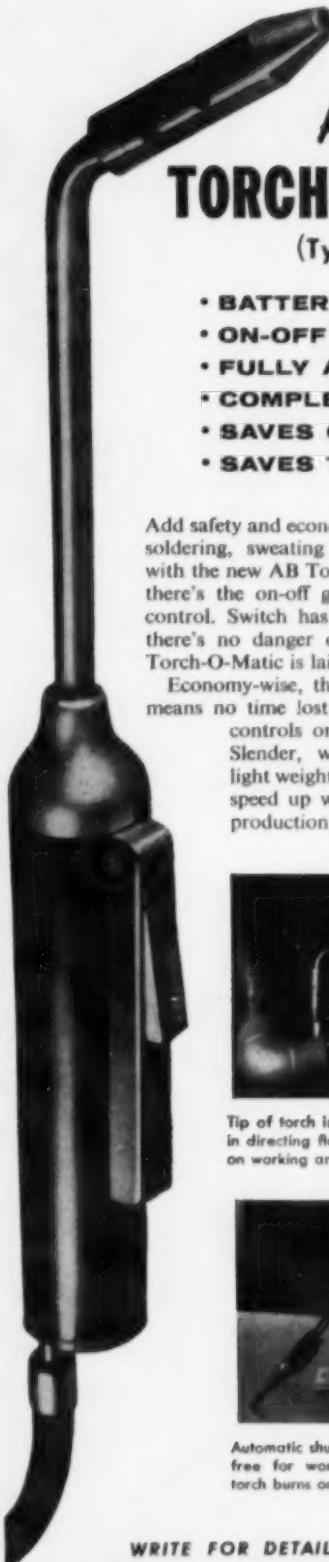
## ALL-NEW TORCH-O-MATIC

(Type AB)

- BATTERY IGNITED
- ON-OFF OPERATION
- FULLY AUTOMATIC
- COMPLETELY SAFE
- SAVES GAS
- SAVES TIME

Add safety and economy to dozens of heating, soldering, sweating and brazing operations with the new AB Torch-O-Matic. Safety-wise, there's the on-off gas switch with finger-tip control. Switch has no lock-on position, so there's no danger of fires or injuries when Torch-O-Matic is laid down between jobs.

Economy-wise, the instant ignition feature means no time lost lighting up or adjusting controls on those stop-and-go jobs. Slender, well-balanced design and light weight eliminate hand fatigue . . . speed up work on maintenance and production schedules.



Tip of torch is angled for greater flexibility in directing flame to precisely the right spot on working area.



Automatic shut-off feature keeps both hands free for worker, also saves gas because torch burns only during in-use time.

WRITE FOR DETAILS TODAY

**VELOCITY POWER TOOL CO.**

201 North Braddock Avenue • Pittsburgh 8, Pa.

Circle No. 102 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION



# genetron®

## Super-Dry Refrigerants

Jenni Genetron Says:

**"No matter where you are  
there's a genetron wholesaler near you!"**

**genetron 11** ORANGE LABEL  
TRICHLOROMONOFLUOROMETHANE

**genetron 12** WHITE LABEL  
DICHLORODIFLUOROMETHANE

**genetron 141** GREEN LABEL  
MONOCHLORODIFLUOROMETHANE

**genetron 226** PURPLE LABEL  
TRICHLOROTRIFLUOROETHANE

**genetron 320** DARK BLUE LABEL  
DICHLOROTETRAFLUOROETHANE

Coast-to-coast, America's leading Refrigeration and Air Conditioning Wholesalers feature *Genetron* Super-Dry Refrigerants. There's one as near to you as your telephone ready to supply you with complete stocks of *Genetron* Refrigerants and with up-to-the-minute data on their uses.

**Remember**—*Genetron* Refrigerants are super-dry! Their moisture content is exceptionally low; their over-

all purity extremely high. They meet the industry's most exacting refrigerant specifications . . . are freely interchangeable with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer. Follow the industry-wide trend to Super-Dry *Genetron* Refrigerants. Always ask for *Genetron*!



## GENERAL CHEMICAL DIVISION

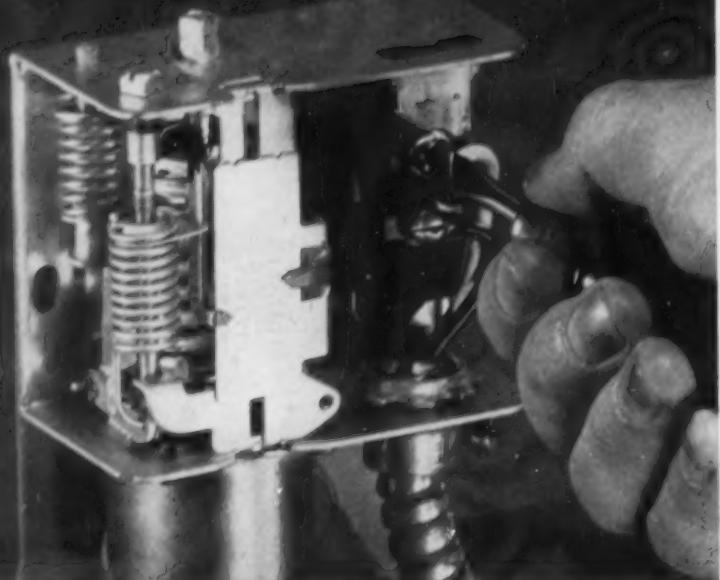
ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

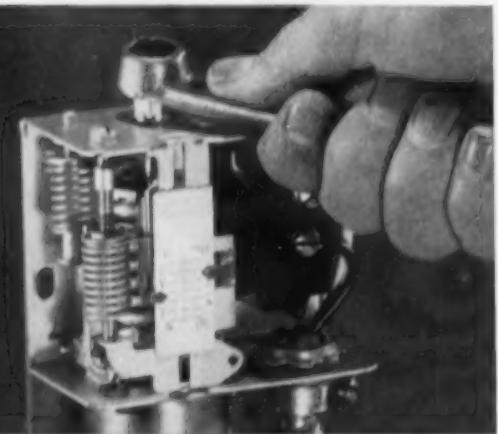
Offices in principal cities

©1956, General Chemical Division, Allied Chemical & Dye Corporation

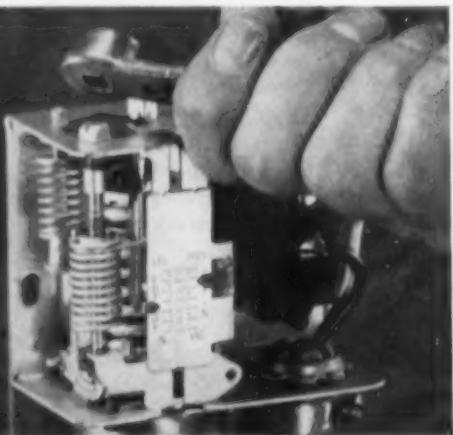
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**Easy to install:** Mount control on compressor unit or any flat surface (bracket furnished) and connect flare nut on capillary. Then, make 2 simple electrical connections; terminals are easily accessible.



**Cut-in setting:** To raise or lower cut-in setting, turn cut-in screw as required . . . differential does not change.



**Cut-out setting:** Turn cut-out screw to raise or lower cut-out setting independently of cut-in setting. This widens or narrows differential.



**Series 270:** Available in single or double pole construction with or without external adjusting knob.

## PENN REFRIGERATION CONTROL IS EASIER TO INSTALL AND ADJUST

**Single Pole Series 270 Combines  
Simple Design With Snap-Acting Contact  
Action For Long-Life Dependability**

Designed with *you* in mind, the Series 270 takes all the hard work out of installation. And, adjustment is even simpler because of Penn's direct-reading, calibrated scale indicating cut-in and cut-out settings. Time-wasting subtraction or addition is eliminated.

Once installed, the Series 270 will perform longer, better, more accurately! One reason is the exclusive contact structure which provides "roll-wipe-snap" action on closing and opening. There's no bounce . . . no closing arc . . . no welding of contacts.

Try the Penn Series 270 on your next job and you'll see the great difference. Ask your wholesaler for the "270." **Penn Controls, Inc., Goshen, Indiana.**

## PENN AUTOMATIC CONTROLS

For Heating, Refrigeration, Air Conditioning, Gas Appliances,  
Pumps, Air Compressors, Engines.

# BNU'S

## TRENDS·OPINIONS·REPORTS

**NOISY EQUIPMENT** is one of the most disturbing problems in air conditioning, according to a recent poll of architects, engineers, builders and building owners. "Too much noise" was the leading objection by all respondents to all types of air conditioning equipment, and "noise reduction" the one major improvement they recommended. In recommending air conditioning systems for new buildings, 68% would put in central systems. For existing buildings, however, 52% would install package-type systems. In new buildings, 66% favored central type equipment to serve one or more floors; and 62% chose packaged systems large enough to serve one floor. Ease of maintenance was the largest factor in selecting the type of system, 24% basing their choice on this. Other factors were: price; 21%; space requirement, 20%; individual room control, 19%; ease of installation, 16%. Almost half of the respondents (49%) expected from 5 to 9 years' trouble-free service from packaged units.

**A "NEW" PROCESS** in which high gamma radiation is combined with refrigeration for increasing the storage life of cooked meats, blanched vegetables and other foods packaged in plastic bags was described by L. E. Brownell at the 52nd annual meeting of the American Society of Refrigerating Engineers in Cincinnati, June 4-6. Brownell is supervisor of the Fission Products Laboratory, University of Michigan. Loss due to spoilage of fresh meats and produce could be eliminated if retail sales were made within a few weeks, Brownell said. Commercial development of the process probably would greatly increase use of refrigeration both in commercial handling of food and storage in the home. Cost estimates indicate that a large-sized plant capable of processing about 2 tons per hour with two 8-hour shifts per day for 260 days per year could irradiate foods with a high-radio-pasteurization dose of 1 megarep for about one cent per pound. This cost is considered to be commercially feasible.

**TEXANS LIKE TO BRAG** that they have more of 'most everthing than anybody else, and in the field of residential air conditioning, at least, it appears they can back up their claims. About 130,000 Texans currently enjoy year-round comfort in 35,000 completely air conditioned homes, according to an industry survey completed by Carrier Corp. In opening Carrier's new air conditioning plant at Tyler, Tex., president William Bynum revealed that this survey showed one out of every 10 centrally air conditioned homes in the nation to be in the state of Texas, with this figure expected to increase by nearly one-third by the end of 1956. These statistics, he pointed out, are completely apart from the hundreds of thousands of Texas residents using room air conditioners in one or more rooms.

**BLOOD PRESERVATION** methods have been advanced by a St. Louis priest, the Rev. Basile J. Luyet, who has discovered a method of quick-freezing blood, and a corresponding quick-thawing process. A member of the Missionaries of St. Francis de Sales and director of the Institute of Biophysics at St. Louis University, Father Luyet found that if the freezing and thawing can be done fast enough, virtually all of the blood cells can be preserved. He uses aluminum foil to hold the blood and warms it to 104 degrees, to speed the process. News of Father Luyet's discovery was announced at a meeting of the Federation of American Societies for Experimental Biology.

**WHEN 1975 ARRIVES**, five people—for every four in 1950—will sit down to eat a meal in the U. S. A. An expected 200 million people by that year is used as a basis for this prediction. The National Association of Refrigerated Warehouses has studied the likely effect of this increase on cold storage, because of the need for more food. It points out that in 1945 there was 1.32 cu.ft. of public freezer space for each person in the U.S. Currently the figure is 1.75 cu.ft., representing an average annual increase of 1/25th cu.ft. of freezer space per capita over the last 10 years. If this trend continues, 2.55 cu.ft. per person will be needed by 1975.

# Let ENGINEERED CONTROLS Do the Job



... that proved the solution to the twin problems posed by the "king size" low temperature system designed for this West Coast frozen food warehouse

**P**LAN it for maximum efficiency, minimum maintenance—and as little supervision as possible." Those were the general instructions laid down by the management of Ralph's Grocery Co. for the design of the refrigeration system for its new frozen food warehouse in Los Angeles, Calif.

This 136 x 140' reinforced concrete structure is cork insulated and contains one 86 x 140' room held at -10 F and one 100 x 140' room held at zero. Specifications called for refrigeration of a surface load on 63,000 sq. ft., plus an extensive lighting system, and an average input of 250,000 pounds of frozen food daily.

Selected to tackle the complete engineering and erection of equipment for this plant was the Los Angeles branch of Creamery Package Mfg. Co. Two-stage compression and ceiling-type water defrost evaporators were decided upon because they offered simplicity of installation, flexibility, and a minimum of maintenance.

Installed in the compressor room were two 5 x 3½ six-cylinder boosters, and two 3½ x 3½ six-cylinder compressors, equipped with 40-hp and 60-hp Fairbanks-Morse motors respectively. Also located in the same room was the 2 x 12' liquid receiver, with a gravity liquid dump mounted directly above.

Condensing is handled by two evaporative type con-

densers, with desuperheat coils, installed at one end of the room. Discharge of air from condensers is vented by stack extension through the roof, forming the ventilation system.

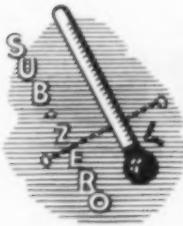
Automatic oil return for the boosters is taken from the intercooler. The oil return for the compressors also passes through the desuperheat coils of the condensers. The gas is then passed into the coil bank of the condenser proper for final condensing and cooling. Condensers are equalized so either one can be used with any machine running.

Each machine is equipped with oil failure switches to cut power if oil pump should fail, or if oil level lowered beyond safe operation.

The plant was designed for one set of machines to maintain temperatures with a normal input load. A second set was installed as an added safety, and would start automatically should the occasion arise to double the product load.

Pressure switches on the instrumentation actuate relays to insure continuous operation, uninterrupted by burned contacts. The entire instrumentation is monitored by warning system which sets off an alarm if anything of serious nature should occur.

Similarly, an electric float switch for high liquid level is mounted on the suction scale trap, and automatically cuts all power to the machines, sounds a



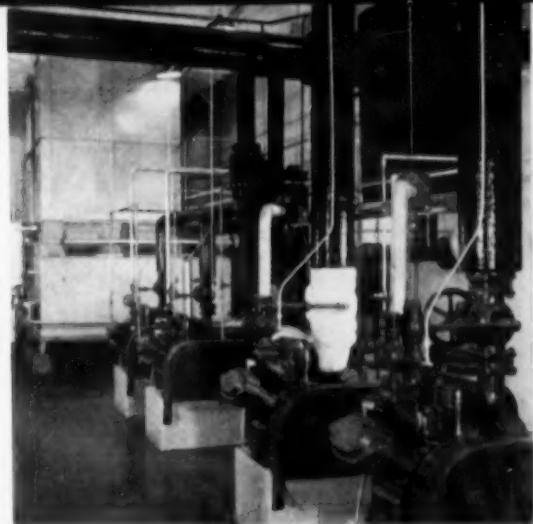
warning horn, and sends its message for help, should the need arise. This condition would only exist if the liquid dump failed.

The water pump on the condensers operates when the corresponding compressor starts, thus keeping a wet coil. The fans, which are the dry type, start simultaneously but are connected in a series with a water thermostat. This arrangement has been found to control the head pressure within a range of three to five pounds.

Design temperatures and estimated product load called for the use of 10 water defrost blowers, mounted five on each end of the -10 F room, and seven mounted four and three in the zero F distribution room. These are equipped with three 1/3-hp fans each, and are required to blow a distance of 70'.

Each bank of blowers is equipped with a specially

*Continued on page 66*



**AUTOMATIC DEFROSTING** is provided by these water defrost evaporators. The system is powered by the compressors shown in top photo, and condensing is handled by evaporative condensers with desuperheat coils.



**FIVE EVAPORATORS** at each end of this 86 x 140' frozen food storage room hold temperature at -10 F.



# GOING DOWN- GOING UP!

It takes a lot  
of refrigeration  
equipment to duplicate  
at ground level the  
atmospheric conditions  
found at 25 miles up.  
Here's how it's  
accomplished in a modern  
high-altitude test  
chamber for aircraft  
components

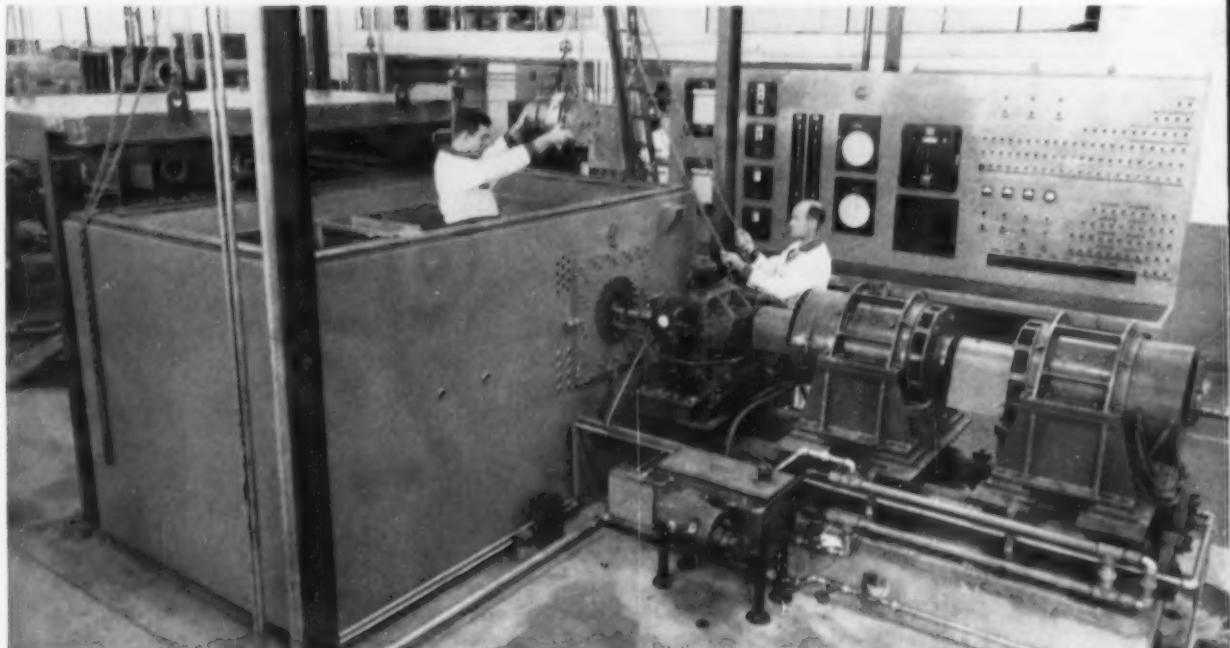
**W**ESTINGHOUSE Electric Corp. engineers can "fly" newly designed aircraft parts up to an altitude of 130,000 feet in a five-ton box that never leaves the ground. These earthbound test "flights" are made in the latest high-altitude test chamber installed at the company's small motor division plant at Lima, Ohio.

Westinghouse engineers, using the chamber, can reproduce atmospheric conditions that range from the warm air of the tropics to the dry sub-zero cold found in the upper stratosphere. In this new unit, electrical apparatus for

planes can be "flown" higher than in any of the plant's previous chambers.

At the more conventional operating conditions, the range of the test is established by the combination of air preparation and evacuating capacity. At lower altitudes, the capacity of the chamber is determined by the air preparation equipment. At high altitudes the evacuating capacity establishes the maximum size of machine that can be tested.

The air preparation equipment has an output of 40 lbs. of air per minute and the displacement of the



evacuating equipment is 5000 cfm. The use of an after-cooler between the chamber and pumps supplements the pump capacity and effectively increases the mass of air that can be drawn through the machine under test. With this laboratory installation it is possible to test generators up to 90 kva at altitudes as high as 90,000 feet and 120-kva machines at an altitude of 80,000 feet. In these tests the temperature range of the inlet air can be varied from -80 F to 500 F.

### System Cross Connected

The air conditioning and evacuating equipment is cross connected with a smaller altitude chamber which permits testing of a complete system with the control apparatus set up in the smaller chamber and generating equipment in the larger. All types of electrical accessories, rotating or control, can be tested in either chamber depending upon the size of the items.

For best operation of the altitude chamber, all the incoming air is cleaned. The filters have a pressure drop of less than one inch of

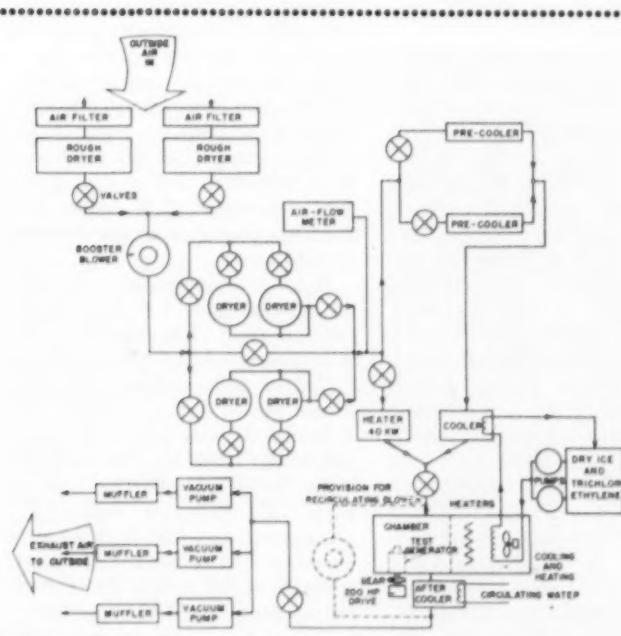
water and will handle 2000 cfm of air and remove 85% of the impurities from the air over a period of 200 hours of operation. The air then flows to the rough driers for removal of moisture. These units consist of two 5-hp, two-stage refrigeration compressors which can be operated independently or in parallel depending upon the drying capacity required. Each compressor will deliver 20 lbs. of air per minute or a total of 40 lbs. of air per minute continuously, cooled between 32 to 38 F saturated when the entry condition of the air to the compressors are 95 F dry bulb, 78 F wet bulb. Temperature control is attained by a thermostat which delivers proportional air pressure to the diaphragm of a back pressure regulator in the suction line of the refrigeration system. This regulator is set to maintain no less than 25 psi of Freon refrigerant to prevent coil frosting. To further protect the system, a safety interlock is provided on the refrigeration unit to prevent the danger of liquid refrigerant getting back to the compressor due to lack of sufficient warm air across the refrigeration coils.

The air next passes to a turbo compressor referred to as a booster blower. This unit equalizes the line and pressure drops so that the air moves at slightly more than sea-level pressure to the point of entrance at the altitude chamber. This blower is capable of moving 650 cfm of air with a pressure rise of 2 lbs./sq. in. across the compressor.

### Driers Regenerated

Four chemical Lectrodryers using activated alumina operate in dual set-up so that two are operating while the other two are being regenerated. With air entering at 38 F saturated, each set of driers will deliver 20 lbs. of air per minute for eight hours continuously with a dew point not to exceed -76 C at sea-level pressure. Air can also be by-passed around the driers so that outside air can be taken in for high-temperature, low-altitude, high-humidity condition tests. Regeneration of the idle units is accomplished by passing steam through coils at 150 psig maximum for four hours and then cooling with water (35 F) for two hours. These units are semi-automatic in that they are timer controlled on the regenerating cycle. The driers are protected with a differential pressure control that operates a horn and starts closing a motor-operated valve in the chamber air inlet to correct for overload. Air coming from the driers, or by-pass, is measured with a flowmeter which telemeters the flow back to a centralized control board. Pressure

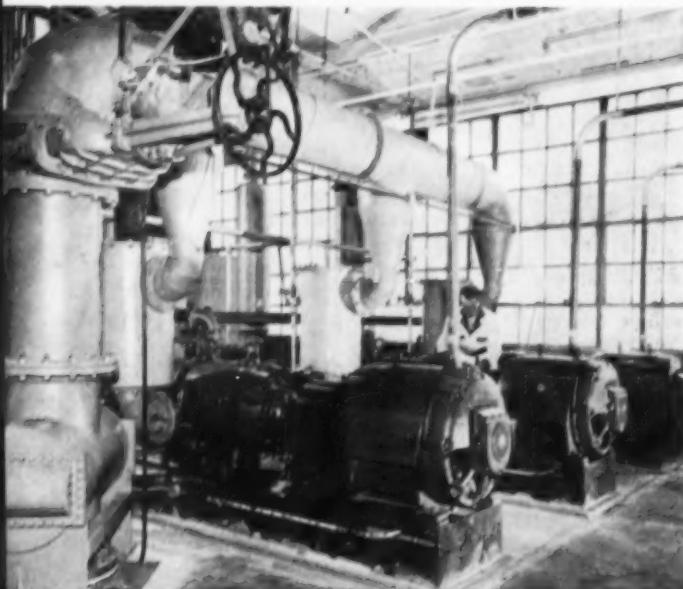
*Continued on page 44*



**TEST FLIGHT** for an aircraft electrical component is readied by Westinghouse technicians. The altitude chamber is 64 cu. ft. in size. Ambient temperature is controlled through a 5-kw heater unit on a set of trichlorethylene cooling coils. Air flow is controlled with a motor-operated proportioning damper door which proportions the amount of air passing over the units.

**LABORATORY LAYOUT** is shown in this sketch, which indicates the various types of equipment used and the processing involved.

## GOING DOWN-GOING UP!



**AIR EVACUATING** equipment comprises three two-stage vacuum pumps operating either singly or in parallel, with a crossover at 40,000 feet. Each pump will handle 40 pounds of air per minute at 110 F at conditions simulating 50,000 feet.



**TWENTY POUNDS** of air per minute at sea level conditions for eight hours are handled by each of these Lectrodryer banks. There are two banks, and while one is at work the other is regenerated by heating.

and temperature are also measured at this point by mass-flow calculations.

From this point, the air flows through pre-coolers (first-stage) consisting of two 20-hp refrigerator-compressor units which can be operated singly or parallel. When the air conditions entering the pre-coolers are 90 F with a dew point of -76 C, 40 lbs. of air per minute can be reduced to -20 F. These units have no temperature control and operate in three stages by unloader valves operating from suction line pressure. For further protection there is a differential pressure control across the cooling coils which will sound a warning horn and shut down the refrigeration unit in event the pressure drop across the coils exceeds ten inches of water. This warning indicates freezing of the coils which would cause the liquid refrigerant to return to the compressor be-

cause of lack of air through the heat exchanger.

Additional cooling takes place in the final stage cooler. This is accomplished by the use of dry ice and trichlorethylene. Five hundred pounds of dry ice is required to charge the liquid. One hundred twenty pounds per hour of dry ice is used for continuous operation. The temperature at this stage is lowered from -20 to -75 F as the air passes over the coils. Air can be by-passed around both the pre-cooler and the cooler for sea-level heating conditions. The temperature of 20 lbs. of air per minute can be raised to 500 F when passed over the 40-kw heaters.

Air to the test chamber is admitted through a 6" motor-operated control valve which controls the altitude or pressure in the chamber. The air passes through a 4" diameter tube, approximately 5' in length, for a blast of unre-

stricted air to the generator under test. The air temperature is measured prior to entering the four-inch tube and is used to control the blast-air temperature. At the point of entry into the generator is a thermocouple for the temperature indication, and a pitot tube for measurement of pressures. All readings are taken at the central control board.

Exterior dimensions of the chamber are 10' x 6' x 6' with walls 1' thick. The chamber is a steel pressure shell fabricated from  $\frac{3}{8}$ " thick plate steel and 6" "I" beams placed 12" on centers. It is insulated inside with a 6" thick red wood frame work containing seven layers of reflective aluminum foil covered with  $\frac{1}{4}$ " aluminum liners. The chamber access door which has the same construction as the shell is a one ton, top opening lid which rests over

*Continued on page 69*



## Precise Defrosting Control

... was required by the varying demands of the five freezer rooms at the new Manhattan State Hospital. Here's how the contractor satisfied this rigid requirement

**P**RECISE control of automatic defrosting schedules on five low temperature rooms to be maintained at temperatures of 10 F and -20 F constitutes an important feature of the refrigeration system installed in the kitchen and storehouse facilities which will serve the new Manhattan State Hospital still under construction on Ward's Island in New York's East River.

The five freezer rooms are powered by two compressors, one of 30 hp and one of 20 hp, which adds another interesting aspect to this installation recently completed by Louis Feld Co., New York refrigeration engineering and contracting firm. All refrigeration facilities are located in a special three-story building measuring 80 x 320'.

The defrost operation on each of the two compressors handling the freezer rooms will be automatically controlled by a Tork "Switchmaster" time switch. Since the defrost needs for these rooms may vary from time to time, depending upon the volume of frozen

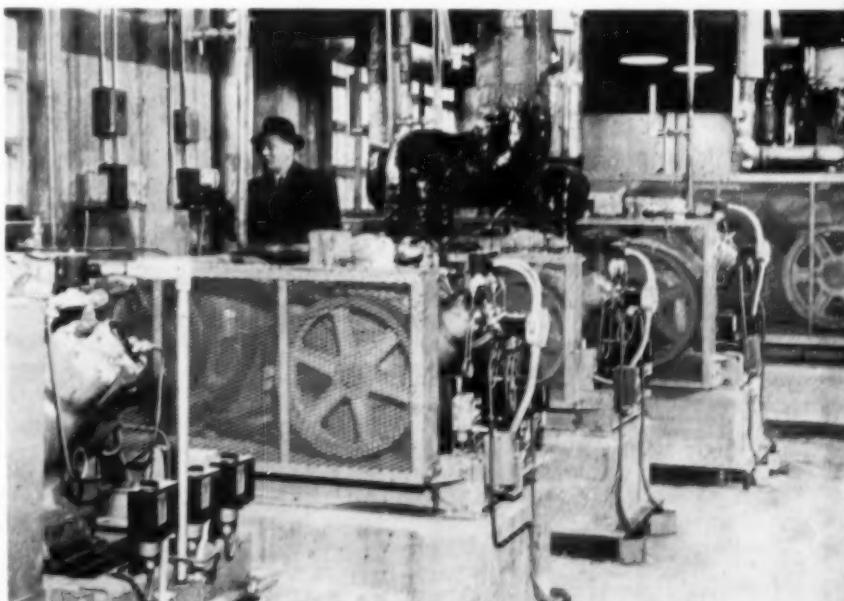
product stored in them, the flexibility of operation afforded by this combination unit was an important consideration.

Actually, defrost cycles ranging from 2 to 55 minutes, accurate to any 1-minute-period adjustment, are obtainable at any hour of the day. This makes it possible for building personnel to change automatic defrost schedules quickly as the need arises.

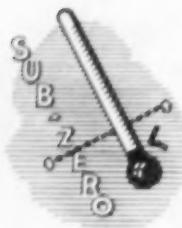
An adjustable tripper on the minute dial governs the exact

length of the defrost operation at any pre-determined time selected on the 24-hour dial. A manual switch makes it possible to start or stop defrosting at other times without altering the master schedule, should this be necessary.

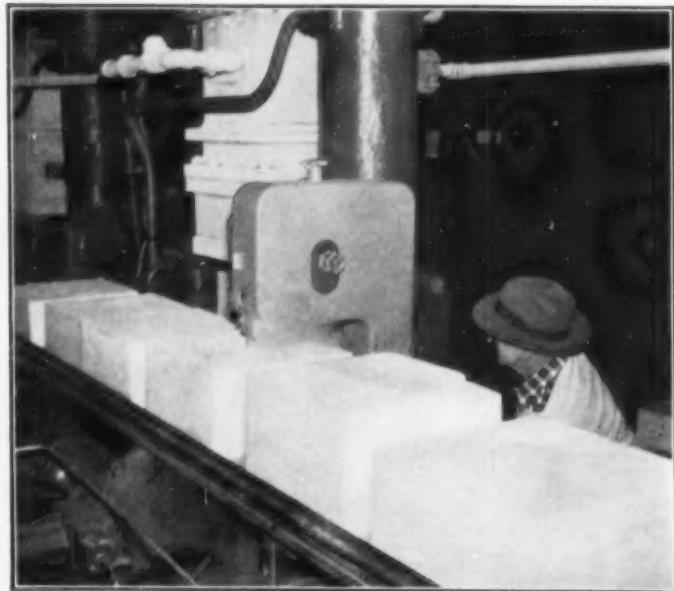
Since each compressor is controlled by a separate time switch, the defrosting schedules for all five rooms need not be the same. The two individual compressors can be timed according to the specific needs of the rooms they serve.



**POINTING OUT** the time switches that control compressor operation in the Manhattan State Hospital installation is Louis Feld, of Louis Feld Co., the contracting firm which handled the job. The 20 and 30-hp compressors in center of photo provide refrigeration for the institution's five freezer rooms.



Ingenious engineers have found a way to eliminate the need for heavy-duty compressor equipment in the commercial production of dry ice by using . . .



## Standard Equipment

### FOR ULTRA-LOW TEMPERATURES

CARBON-DIOXIDE gas from natural wells in the desert of Southeastern Colorado is being changed to solid form, in quantities up to 50 tons a day, at a plant 32 miles from Las Animas. Constructed last year by the Colorado CO<sub>2</sub> Corp., the plant utilizes an advance process which makes unnecessary the use of special heavy-duty carbon-dioxide compressors. The design work was done by engineers of Frick Co.

Gas leaving the wells is pumped by a booster compressor into an 8" pipe line, five miles long. The pressure at the outlet of this pipe, where the gas enters the mixing drum at the plant, averages 25 lbs. gage. The temperature in the mixer and exchanger is lowered by the cold gases returning from the snow presses. Some of the entrained moisture is removed by this procedure.

The carbon-dioxide gas is drawn from the mixer into a pair of standard 12" x 12" enclosed-type com-

pressors, each with two cylinders. These are equipped with automatic capacity controls, hydraulically operated. The machines discharge at 250 lbs. gage pressure into a water-cooled shell-and-tube vessel, which serves as a precooler and oil separator.

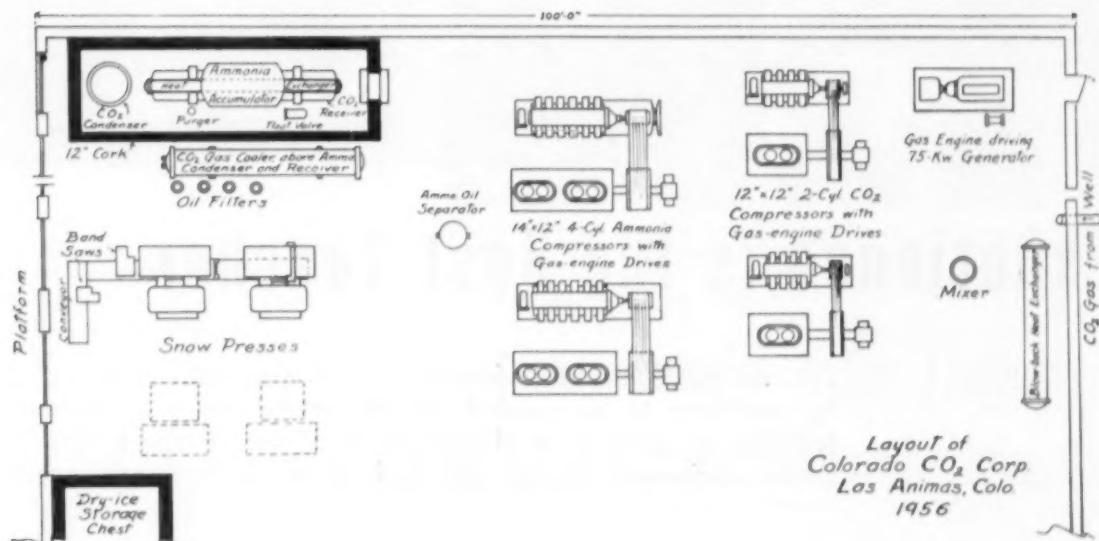
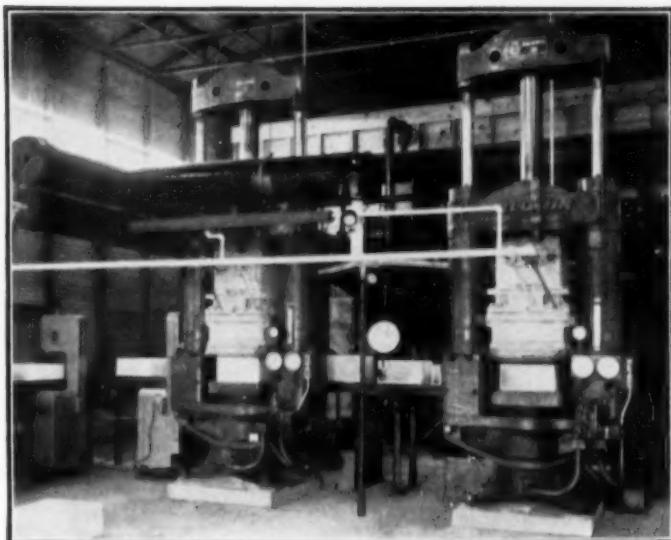
Next in line are four vertical oil filters, having removable heads, with the piping so arranged that they can be operated in parallel groups or in series. The cleaned carbon dioxide is then changed to liquid form in a shell-and-tube condenser. This vessel is also vertical, and has in the tubes liquid ammonia, maintained at 28 F. The liquefied carbon dioxide is stored in a 38" x 18" receiver.

After leaving the receiver the liquid stream goes into a single-pass heat exchanger, through which the blow-back gas from the snow machines is drawn on its way to the mixer. The blow-back gas is at -100 F. or colder. The carbon-dioxide condenser, the receiver,

**DRY ICE** (left) is sawed into blocks 10 in. square and 11 in. high. Individual cubes weigh approximately 60 lbs. After cutting, the dry ice is wrapped and packed in insulated trucks for delivery.

**SNOW PRESSES** (right) form the dry ice under 2400 lbs. pressure, using hydraulic equipment. Each of the two presses is capable of producing up to 25 tons of dry ice per 24 hours.

**MACHINE ROOM** layout (below) of the Colorado CO<sub>2</sub> Corp. plant near Las Animas. The sketch shows arrangement of compressors, snow presses, ammonia accumulator, band saws and other production equipment.



and the sub-coolers are normally covered with frost, and are enclosed in an insulated room.

Each snow press has a chamber 20" square, fitted with a ram in the upper part and a power-operated coverplate at the bottom. Hydraulic cylinders, fed with oil at 2400 lbs. pressure, operate the machines, each of which is capable of making up to 25 tons of dry ice per 24 hours.

To operate the press, sub-cooled liquid CO<sub>2</sub> is expanded into the square chamber at a mixed pressure for a fixed time. Some 42½% of the liquid carbon dioxide flashes into loose snow. This is compressed by lowering the piston-like ram from the top. The flash gas, representing 55% of the carbon dioxide, is drawn back into the system. When the compressed block of snow is approximately 11" deep, the chamber

is pumped down, the lower head is dropped, and the solid white product is pushed on a conveyor. This takes the blocks past two bandsaws. The saws and conveyors are placed at right angles, so that the blocks are sawed into 10" x 10" x 11" cubes, each weighing about 60 lbs. The dry ice is wrapped in paper and is placed in heavily insulated trucks for delivery.

The ammonia cycle includes two large compressors, each with four 14" x 12" cylinders. These handle the suction gas from the system which cools the CO<sub>2</sub> condenser; the ammonia is fed by a float valve.

The ammonia, in turn, is condensed in an 8-pass shell-and-tube vessel supplied with water from a cooling tower. The liquid ammonia drains into a receiver measuring 24" in diameter by 18' long. This is fitted with an electronic purger.



**CONDENSING LOAD** for two 40-hp compressors used in the Delvale Dairies system is handled by a single "Unicon" air cooled condenser mounted on the roof. Shown with it are George J. Roche, William S. Rock, Eldon Fogelsanger and Edwin Rust.

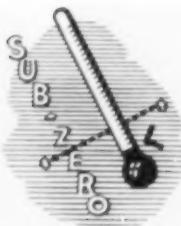
## Experience is the Best Teacher

. . . so when this dairy found it could cut water costs 90% by switching to air cooled equipment for the cold storage facilities at some of its branch plants, it wasn't long before a similar equipment change was made at the firm's headquarters



**E**XPERIENCE with air-cooled condensing equipment in several of its branch operations was the lever that switched the Delvale Dairies, Inc., of Baltimore Md., to the same type of equipment in its main plant. The decision was not a hasty one, for management of the dairy company had observed the operation of the equipment in some of its branch locations for as long as two years

**INTERIOR** of 28' x 97' ice cream storage room at Delvale Dairies, Inc., Baltimore. The room is equipped with two Kramer Trenton "Thermobank" automatic defrosting systems.



before making the change in its main location.

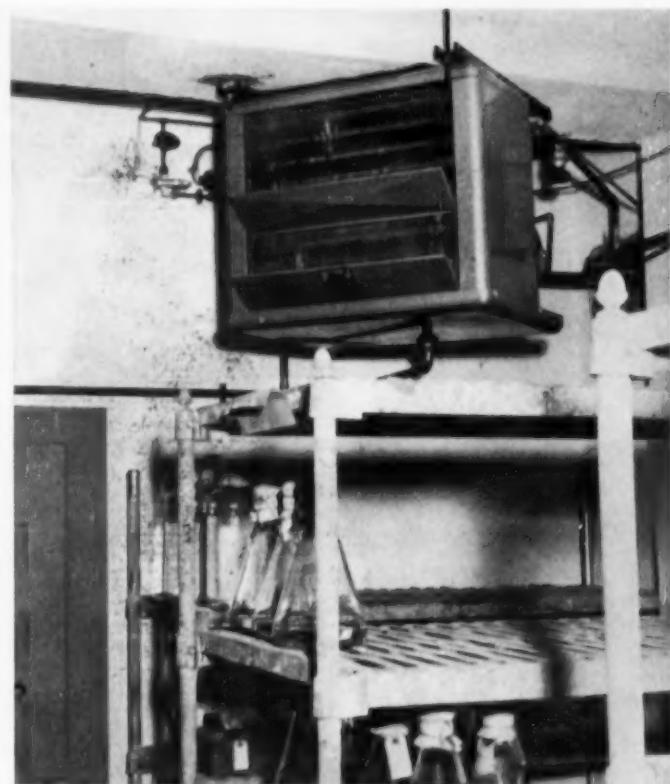
Now under full operation in the Baltimore plant, the 80-hp system uses the Kramer "Unicon" air cooled condenser and L-type "Thermobank" automatic hot gas defrosting system. Important savings in water and maintenance costs are expected to result from the changeover.

Chief engineer of the dairy company, Eldon Fogelsanger, pointed out that by eliminating the use of water for refrigeration at the company's Gettysburg, Pa., plant, the dairy had reduced its total water bill from between \$75 and \$100 a month to as low as from \$7 to \$10 a month after air-cooled equipment was installed on a 20-hp cold storage system.

The new installation in the dairy's main Baltimore plant services an ice cream room that measures 97 feet by 28 feet. The room is held at -20 F and handles a load of 1,500 dozen ice cream specialties per hour.

Two Brunner 40-hp refrigerating machines, using Freon 12, are installed on the system. The condensing load is handled by a single Unicon unit (BD4000), which is mounted on the roof of the dairy. The condensing equipment maintains proper head pressure in an outside temperature range of 100 to 0 F. The unit is equipped with a Kramer "Winterstat" for cold weather operation.

The cold room itself is served by two type L Thermobank systems, which provide automatic defrosting without the use of manual labor. The installation was sold by Roche & Hull, Inc., Baltimore, under the supervision of William S. Rock, the company's sales engineer.



**TEMPERATURES ARE MAINTAINED** within plus or minus 2 F in the work rooms of the protein research laboratory of the New York State Division of Laboratories and Research, Albany, N. Y., by unit coolers of the type shown here. Two of the four work rooms are held at 23 F, one at 32 F and one at 38 F.

## Coolers Preserve Protein Fractions

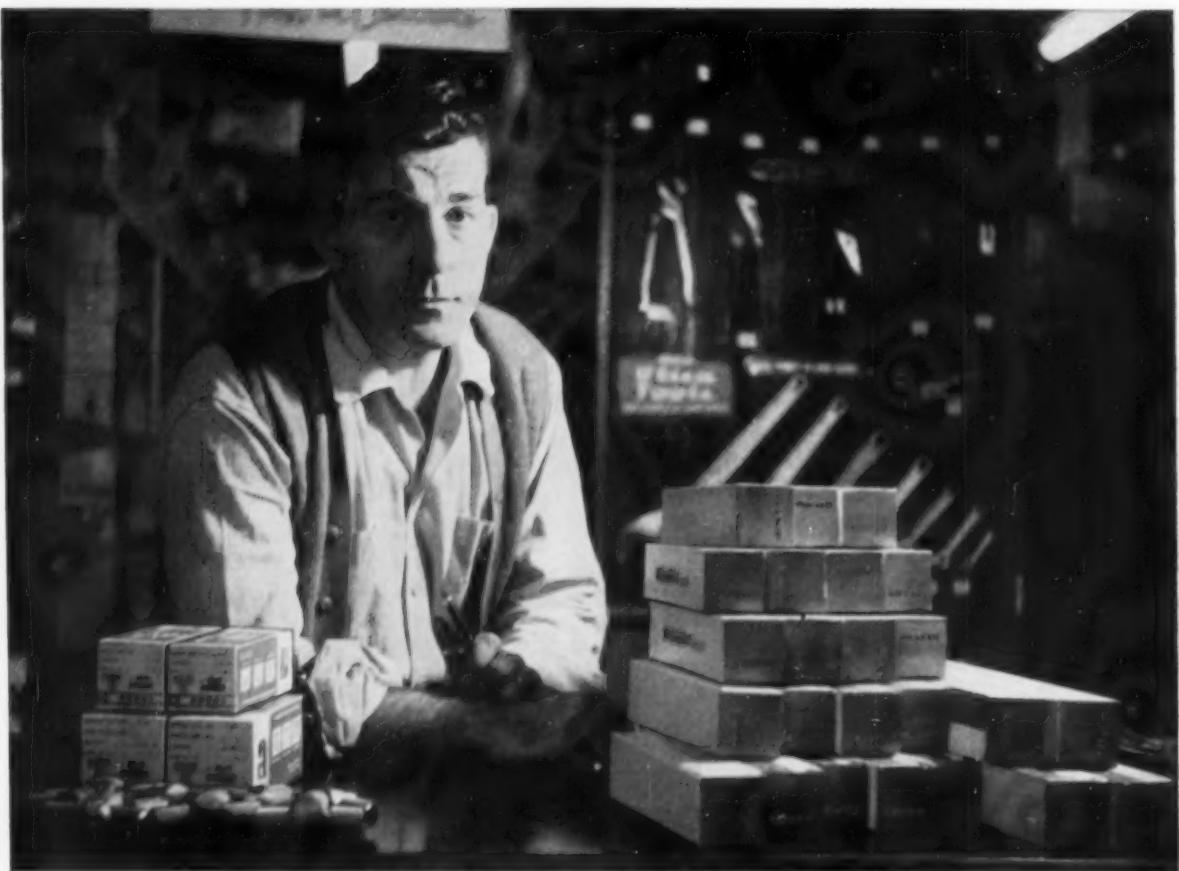
**A** GRAPHIC illustration of the use of modern refrigeration equipment as an aid to medical science is the one in West Wing Building No. 6 of the New York State Division of Laboratories and Research at Albany, N. Y.

As part of a broad program of augmented research, this building recently was reconstructed to provide a modern protein research laboratory. Work conducted there consists of preparing different protein fractions of human blood plasma for experimental use.

To avoid denaturation of the protein, the work must be carried on at reduced temperatures. Of the five cold rooms included in the laboratory, two are maintained at 23 F, one at 32 F, and one at 38 F. The fifth room, used principally for storage, is held at 14 F.

The four work rooms are served by Bush model UC unit coolers, and temperatures are maintained within plus or minus 2 F of the pre-setting, despite the fact that the nature of the work conducted in them requires that doors be opened frequently. The storage room is served by a Bush Therm-O-Cycle unit, which is electrically timed to defrost every six hours.

Plans and specifications for the refrigeration installations in the rooms were prepared under the supervision of the Division of Architecture, State of New York Department of Public Works. Equipment was installed by Gardner's Refrigeration, Schenectady, and A. J. Eckert Refrigeration Corp., Albany.



Compare the Ansul line on the left with a typical competitive line at the right.

## You can see how the Ansul line will cut your dollar investment in driers up to 75%

You start to save money *immediately* when you standardize on the Ansul line of T-Flo Driers and fittings. Service engineers and contractors who have stocked the Ansul line have been able to cut their dollar investment in drier truck stock an average of 50% to 75%.

Savings like this are possible because Ansul's 4 T-Flo Drier cartridges and 8 T-Connectors are all *interchangeable*. These twelve parts give you 32 possible installation combinations. Why tie up two or three times as much money in 32 ordinary driers? The Ansul line not only provides a complete stock at a fraction of the cost, but assures a better, faster drying job. For the largest installations Ansul T-Flo Driers can be easily manifolded or used on a by-pass to provide unlimited drying capacity. No need to stock large, expensive driers that you seldom use.

Changing a T-Flo Drier cartridge is the easiest thing

in the world. Breaking leak-proof flared or sweated joints is unnecessary. Just unscrew the old drier and replace it with a new one. Hand tightening will give you a leak-proof seal. And you can install the T-Flo Drier in any position, up, down or sideways.

Ask your wholesaler about the new Dry-Eye fitting, the moisture indicator which means substantial savings in both time and money to service engineers and equipment owners. The window in the dry-eye changes color to let you see if the system is wet or dry. *Blue* means the system is dry, *pink* means excessive moisture is present.

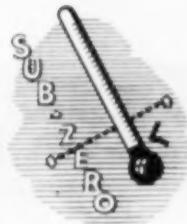
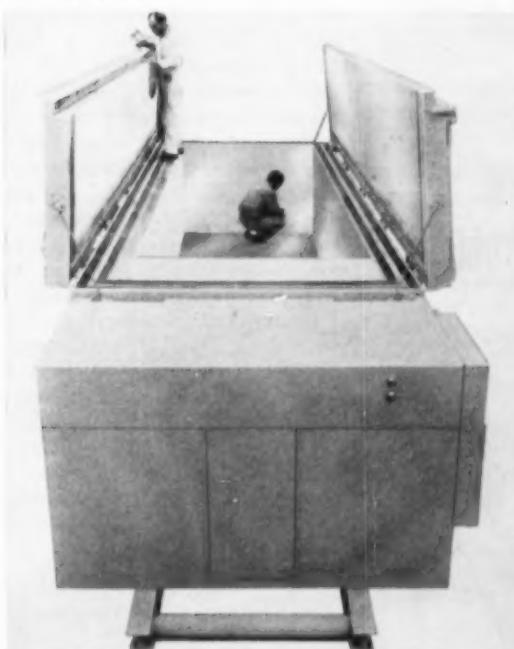
Ansul is a national distributor for DuPont "Freon"—the time tested refrigerant. **ANSUL CHEMICAL COMPANY**, Marinette, Wisconsin.



Circle No. 12 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION

**COMPLETE ROCKET MOTORS** can be lowered into this 20 x 6 x 6' test chamber and then subjected to extreme temperature ranges to assure proper functioning of the equipment in actual operation.



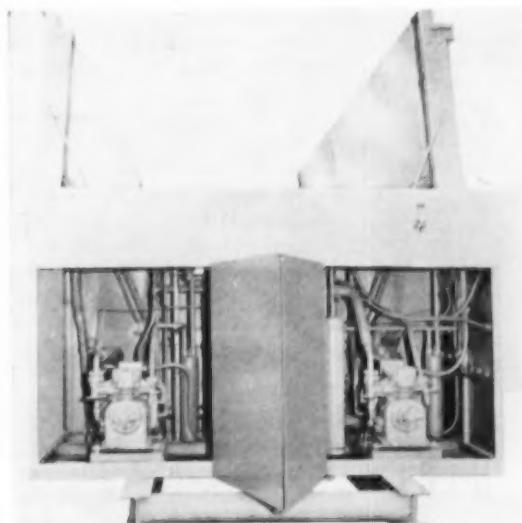
**N**EW rocket motors can be tested for performance in temperatures ranging from 170 F to -100 F in the plant of Aerojet-General Corp. of Azusa and Sacramento, Calif., one of the nation's leading rocket test centers.

Moore & Hanks of El Monte, Calif., working in conjunction with Pacific Refrigeration Co., helped to design and build the test equipment. Measuring 30 feet x 8 feet x 6 feet high, the unit will handle an internal product load of 7,500 Btuh at -90 F.

For higher internal heat loads at low temperatures, a supplementary liquid CO<sub>2</sub> injection system is provided. Temperature control tolerances are held at plus or minus 3 F in time and space, according to government specifications for the testing of rocket motors.

Inner lining of the conditioning box is of aluminum, to provide a non-sparking surface. Outer casing is of cold rolled sheet steel, providing protection against weather and elements. The unit requires no additional

# 170 F to -100 F Range



**REFRIGERATION SYSTEM** capable of pulling interior temperature down as low as -100 F is an integral part of the chamber's mechanism.

protective structure or building. For semi-portability, the chamber is mounted on wide flange steel skids. Insulation is 9 inches of glass fiber, vapor sealed.

Two full top-opening doors expose the entire working area (20 by 6 feet). These are split at the center, and open automatically by pneumatic hydraulic system with partial spring counterbalancing.

Conditioning coils of copper tubes and aluminum fins are mounted at one end of the chamber, with fans mounted above and return air duct run along one side.

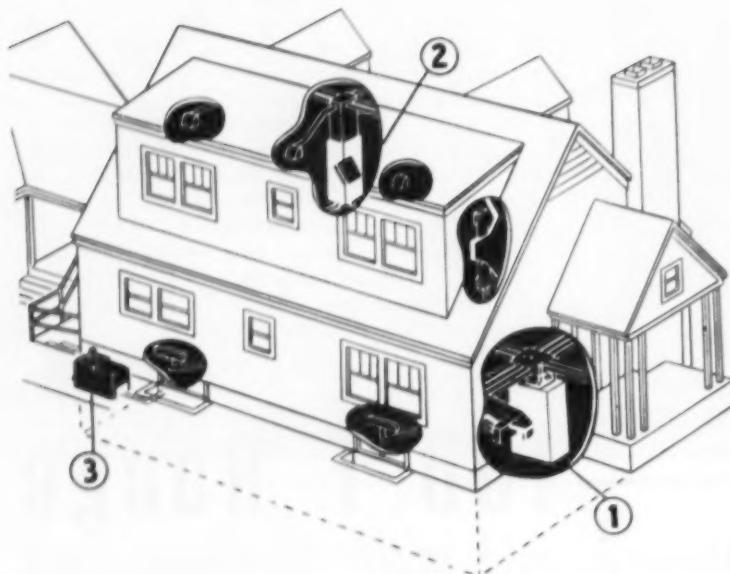
Cooling is produced by a cascade type mechanical refrigeration system, using Freon 13 and Freon 22 refrigerants, and two 7½-hp compressors. A direct expansion cooling coil transfers the heat from within the box to the Freon 13. Fan motors are mounted externally with special stainless steel sealed shaft assemblies running through the wall.

The CO<sub>2</sub> injection system uses 300 psi, zero F liquid for producing supplementary cooling. The liquid CO<sub>2</sub> when sprayed into the air stream becomes a fine snow which then sublimates (vaporizes) and absorbs heat. The resulting CO<sub>2</sub> gases are then exhausted from within the chamber. Heating is accomplished by an explosion-proof electric air heater.

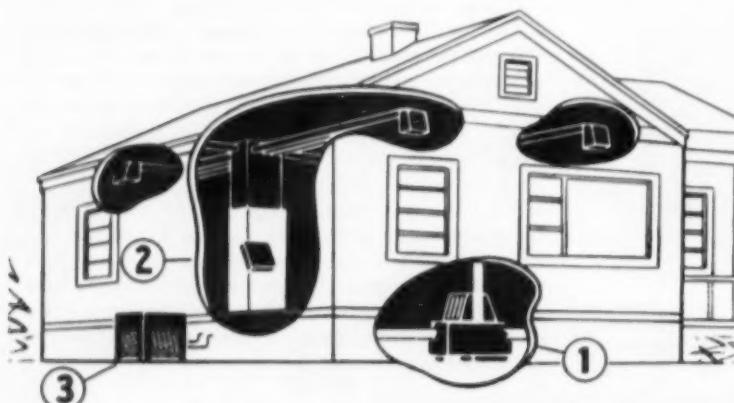
# CONTRACTORS

## NEWS • ACTIVITIES • PLANS

### Flexibility of Residential Air Conditioning Equipment Eases Contractors' Problems



**VERSATILITY** of modern air conditioning equipment is demonstrated in these sketches, two of a series used by A. B. Newton, Coleman vice president of design and research, in a recent talk. In the two-story house (above), improved cooling calls for a cooling coil in the furnace plenum (1) and a separate vertical cooler (2) located in a second-floor closet. The furnace coil serves outlets on both floors. Both cooling coils are connected to an air-cooled condensing unit (3) outdoors. In the sketch below, a house heated by a floor furnace (1) is served by a vertical cooler (2) located in the unused end of a closet or furred into the corner of a room. Cooling coil is connected to an outdoor condensing unit (3).



### JERSEY HEATING-COOLING ASSOCIATION FORMED

Meeting in Brunswick, N. J., recently, the board of governors of the newly formed Master Heating and Cooling Association of New Jersey approved the final draft of their state constitution, and elected the following officers for 1956:

President, Nat Pierce, Cranford; first vice president, Jerry Faulkner, Collingwood; second vice president, Wilson W. Sammis, Hackensack; secretary, Jack Madison, Keniworth; financial secretary, Wes Rankin, Pennasuken.

County vice presidents named were: Tom Valour, Morris County; Louis C. Markette, New Brunswick; Harry Aumack, Red Bank; and Bob Crane, Cranford. John M. Sibarium, technical adviser to the heating and cooling associations on both the state and county levels, assumed the post of permanent vice president.

### RACCA RECORDS MEMBERSHIP GAINS

Membership was expanded in the Refrigeration and Air Conditioning Contractors Association during May and June, according to Ray Kromer, executive vice president of the group.

Toledo, Ohio, contractors who submitted applications included: Lumm Corp.; John F. Stark & Sons; Refrigeration Maintenance Co.; Hausman Steel Co.; Davison Associates, Inc.; and James A. Foley, Inc.

Cincinnati applications were received from Arthur Radtke, Cincinnati Air Conditioning Co., and Harold Koch, Twentieth Century Refrigeration Co.

Other applications were from C. F. Sweeney, Sweeney Engineering Co., Lima, Ohio; and K. L. Dixon and J. N. Fowdren, Able Service Engineers, Mobile, Ala.

### N.Y. DEALERS CAUTIONED ON 7½-AMP UNIT WIRING

New York's air conditioner dealers have been cautioned by the city's Better Business Bureau that the new 7½ ampere window units should not be advertised in New York City as an appliance

*Continued on page 65*

# LOW COSTS

You can count on dependable refrigeration at low maintenance costs when *Texaco Capella Oil (Waxfree)* is your compressor lubricant. This is the oil that *won't precipitate wax* in compressor systems, even at temperatures as low as minus 100° F.

*Texaco Capella Oil (Waxfree)* is noted for outstanding stability and resistance to oxidation. It will not foam, is moisture-free and compatible with all refrigerants.

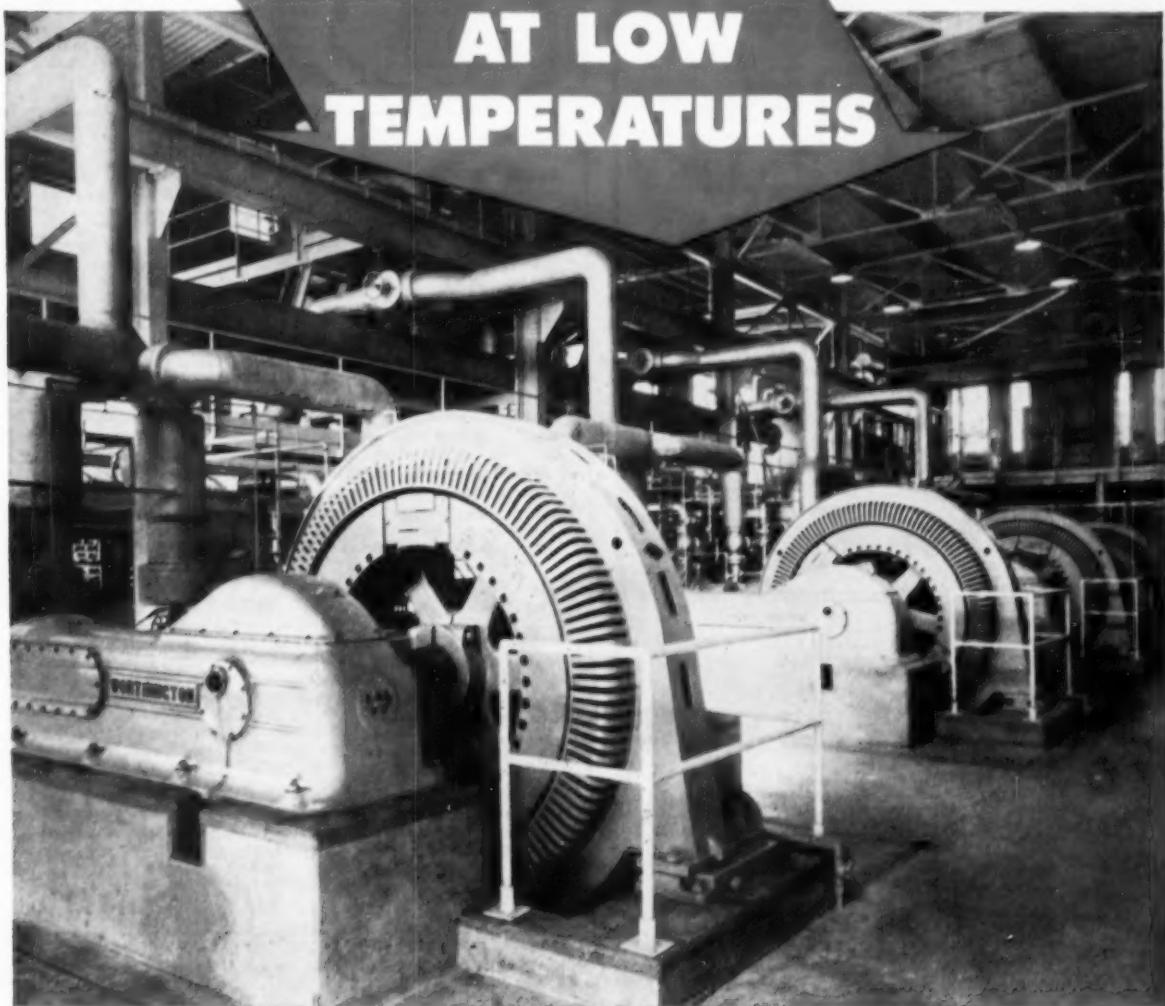
The complete line of *Texaco Capella Oils (Waxfree)*—for all types and sizes of compressors—exceeds the require-

ments of the Freon floc test as well as the specifications of all leading refrigeration manufacturers.

*Texaco Capella Oils (Waxfree)* come in refinery-sealed 55-gallon and 5-gallon drums, 1-gallon cans—and the most-used grades in 1-quart containers.

A Texaco Lubrication Engineer will help you select the proper ones for your operation. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

## AT LOW TEMPERATURES



## TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

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Circle No. 39 on Reader Service Card

# Sell the BEST!



## Pinnacle WALL TYPE BEVERAGE CASE.

This outstanding Beverage Case has all the features found in other top quality constructed commercial refrigerators. . . . **PLUS**: EASIER ROLLING DOORS — has Stainless Steel Rollers; BETTER INSULATED DOORS AND JAMBS — practically eliminate condensation and chance of short circuiting; . . . **LIFETIME FINISHES** — chip-proof, rust-proof and stain-proof; . . . **BETTER LIGHTING** — shows more, better! Mr. Dealer — you'll not only make a substantial profit, but you'll be proud to install this economical operating beverage case!

Available in 6, 8 and 10 foot models in either Porcelain or Stainless Steel. Model WBS26 (pictured here) is 6 ft. wide; 78" high and 30" deep. Holds 48 cases of 12 ounce bottles.

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature!

**Pinnacle**  
EQUIPMENT CORPORATION  
FLEETWOOD, PENNSYLVANIA  
EXPORT DEPT.—39 Broadway, New York



Wholesaler: United Refrigeration Supply.  
Contractor: Poffetti Refrigeration Service.  
User: Liberty Cash Grocery Warehouse, Memphis, Tenn.

## NEW KRACK LOW TEMPERATURE Electric Defrost Unit Kooler Completely Automatic

- Fewer defrost periods needed.
- Insulated cabinet retains, circulates heat when closed . . . speeds defrosting.
- Internally wired for easy installation.

GET NEW BULLETIN ED-1055 for details!



REFRIGERATION  
APPLIANCES, INC.

25th Anniversary in Refrigeration & Air Conditioning

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USEFUL

## BULLETINS • BOOKLETS • CATALOGS

**PIE-SHAPED REFRIGERATION** coils for applications above 34°F are shown in Recold Delta Coil Catalog No. 4C6a, prepared by Refrigeration Engineering, Inc. Data on complete line includes specifications and dimensions.

Circle No. 103 on Reader Service Card

**VOLT AMMETERS** are discussed thoroughly in two pieces of literature available from Pyramid Instrument Corp. The first booklet suggests 14 ways volt ammeters can boost service profits. The second elaborates on seven tests that easily and accurately check the condition of any electric motor.

Circle No. 104 on Reader Service Card

**RUBBER DOORS** are featured in 4-page catalog and colorful insert published by Rubbair Door Div., Stic-Klip Mfg. Co., Inc. Installation specifications and mounting and ordering information are furnished.

Circle No. 105 on Reader Service Card

**MEAT EQUIPMENT AND SUPPLIES** are detailed in 16-page, No. 6040 Catalog supplement published by Koch Supplies. In addition to many new products, over 200 items from Koch's regular line are illustrated and listed.

Circle No. 106 on Reader Service Card

**SPECIFICATIONS, DIMENSIONAL DATA**, and colorful illustrations promote frozen food cases by Ideal Store Fixture Co., Inc., in new 12-page brochure. Included is information on self service frozen food, double decker dairy, refrigerated produce, and meat cases, in addition to many other types of display cases.

Circle No. 107 on Reader Service Card

**WAYS TO SERVE MORE OUTLETS** and save valuable floor space with remote-type water coolers are offered by Temprite Products Corp. in its brochure, A.I.A. File No. 29-D-42. Included are clever illustrations and tables showing how to determine specific requirements.

Circle No. 108 on Reader Service Card

**NEWEST FEATURES** of Cutler-Hammer Bulletin 9586 starter are examined in company publication, EE-191. Advantages are listed and component parts are illustrated.

Circle No. 109 on Reader Service Card

**CORRECT CAPACITANCE** for motor capacitor replacements can be determined quickly with pocket calculator (Replacement Guide C-75) offered by Sprague Products Co. Two movable discs, when set to proper motor horsepower rating, automatically show through two cut-out windows required capacitance and corresponding part number. One side of guide is for oil-fired capacitor replacements; and other is for electrolytic capacitor replacements. Available free from all Sprague distributors or by sending 6 cents to cover postage and handling direct to Sprague Products Co., 53 Marshall St., North Adams, Mass.

**NEW ELECTRIC PLANT CONCEPTS** are revealed in "Engineered Kilowatts," 8-page manual published by International Ferment Machinery Co., Inc. Designated Bulletin No. 955, manual incorporates reference material, forms, and check lists concerning these gasoline-powered electric plants which have capacities from 5 kw through 250 kw. Selection factors based on thousands of case histories and typical specifications also are included.

Circle No. 110 on Reader Service Card

**COPPER PLUMBING** is the subject of a new 88-page general fittings catalog (catalog 1) prepared by Northern Indiana Brass Co. More than 4,500 different styles and sizes of fittings are listed and illustrated. The company's new line of traps are featured in the enlarged drainage section. Also included is an engineering section.

Circle No. 111 on Reader Service Card

**FASTENING TOOL** information is offered in two new booklets by Ramset Fastening System, Olin Mathieson Chemical Corp. One booklet describes various plant maintenance applications and discusses the fastening of conduits, buss ducts, junction and outlet boxes, surface raceways, fixtures and frames, duct straps, fan and blower mounts, sprinkler pipes, wood partition plates, and moveable partition plates. The second publication elaborates on the uses of the instrument for lead lining.

Circle No. 112 on Reader Service Card

**COMPREHENSIVE PRESENTATION** of the 1/4 through 3-hp line of semi-hermetic condensing units and high-torque motor compressors is contained in 24-page book (G-411), one of two product catalogs issued by the Brunner Co. The second is a 4-page consolidated catalog, a condensed version of the formal catalog.

Circle No. 113 on Reader Service Card

**BAYONET SAW** applications and characteristics are explained in handy, illustrated, 26-page manual produced by Porter-Cable Machine Co. Described is portable jig saw, Model No. 148, with orbital blade action. Suggestions are given for plunge cutting in wood, laminated plastics, and plywood, as well as for notching and shaping stock as in house framing.

Circle No. 114 on Reader Service Card

**SUB-ZERO TEMPERATURE CABINET**, Model WE-2-140 with 2-cu. ft. capacity with front or top opening for testing of electronic components, cold treatment of metals, thermal contraction and expansion fitting is outlined in Bulletin No. 61 available from Webber Engineering Corp. Basic construction features also are supplied.

Circle No. 115 on Reader Service Card

**TROUBLE-SAVING TIPS** for users of V-belt drives make three cartoon-type pieces of literature produced by Worthington Corp. valuable. Mailer No. V-1400-M39P illustrates seven symptoms to look for when units fail to deliver maximum rpm. Mailer No. V-1400-M38P offers installation suggestions and explains how to select proper drives; keep sheaves properly maintained; adjust belts; and check motor and driven shaft for alignment. Mailer No. V-1400-M40P discusses symptoms of V-belt failure and gives diagnosis and cures for all kinds of belt troubles.

Circle No. 116 on Reader Service Card

**BRASS FITTINGS** are promoted in a new and improved Span Brass Mfg. Co., catalog, which is subdivided for quick reference to all kinds and types of fittings. Many new items are shown, and the range of sizes has been expanded on a considerable number of units.

Circle No. 117 on Reader Service Card

(See page 92 for Air Conditioning Literature)



## Plastic Coating Stops Costly Condensation Drip and Rust

**THE COSTLY PROBLEM** caused by dripping from this sweating pipe was permanently solved with one easy and inexpensive application of NoDrip Plastic Coating. Sweating pipes, ceilings, air ducts and other metal equipment are also completely protected against rust and corrosion by low cost NoDrip.

NoDrip Plastic Coating acts immediately to insulate and protect. One application adds many years of service life to metal equipment. NoDrip is also resistant to acid, alkali and brine...protects concrete, brick, plaster, tile, wood or composition surfaces.

Easy application requires no special equipment or skill. Anyone can apply NoDrip with brush, trowel or spray. Stop your condensation problem now! Get full details without delay.

**J.W. Mortell COMPANY**

**32-PAGE NoDrip DATA HANDBOOK**

Complete with photographs, charts and technical information to solve your condensation problem. Write today.

Available at leading refrigeration supply houses

J. W. MORTELL Co., 553-H, Birch St., Kankakee, Ill.

Please send my FREE copy of the NoDrip Data Handbook.

Name \_\_\_\_\_

Company \_\_\_\_\_ Title \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 41 on Reader Service Card

# NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 96)

## Remote Control Bender

**Product:** Model RC remote control "One Shot" tube bender.

**Manufacturer:** Tal Co., Milwaukee, Wis.

**Features:** Bender weighs only 68 lbs. and is said to be lightest unit available. Product makes any degree bend in one setting, and is



available for pipe, rigid conduit, bus or bar. Tool also can be had to bend EMT or copper tubing, and with pipe straightener, if used with standard all-purpose frame. Available with electric motor pump, unit can be used anywhere on job and in any position. Saves considerably on cutting, threading, or welding, and on handling and assembling of cut-up pipe, put together with welded or threaded fittings. Bending frame has removable top-plate which permits laying pipe if from top, slide in from side, or hook bender over installed pipe.

Circle No. 154 on Reader Service Card

## Tubing Cutter

**Product:** Armstrong 3" tubing



cutter (D801) for copper, brass, and aluminum tube from  $\frac{1}{8}$  to  $3\frac{1}{8}$ " O.D.

**Manufacturer:** Capewell Mfg.

Co., Hartford, Conn.

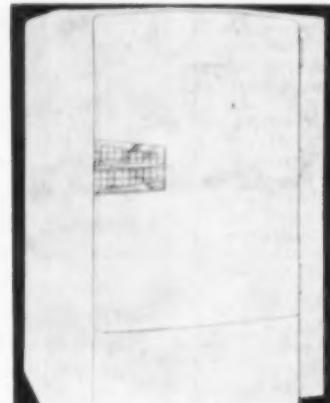
**Features:** Weighs only  $2\frac{1}{2}$  lbs. and easily cuts 3" tubing with practically no burr, manufacturer says. Has heat-treated tool steel cutting wheel in malleable iron mount; double steel rollers; steel scroll screw with knurled handle; and heat-treated aluminum alloy body which reduces weight to minimum and still provides for heavy-duty service.

Circle No. 155 on Reader Service Card

## Upright Freezer

**Product:** Improved "Polar Pantry" upright freezers (L29 and L29-D).

**Manufacturer:** La Crosse Cooler Co., La Crosse, Wis.



**Features:** White baked enamel now provided for 29 cu.ft. series, similar to 19 cu.ft. size. Models have automatic lighting, built-in condensation minimizers, and all-steel construction. Refrigerant tubing fused to individual shelves for flash freezing. Both models available with or without inner compartment doors.

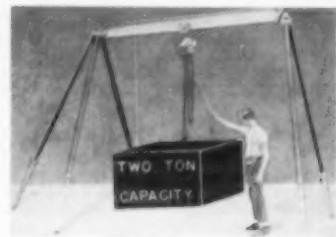
Circle No. 156 on Reader Service Card

## Adjustable Gantry

**Product:** "Magic-Pole" portable adjustable height gantry.

**Manufacturer:** B. E. Wallace Products Co., Exton, Pa.

**Features:** Uses high strength aluminum alloy I-beam. Sturdy tripod end supports can be used inde-



pendently. Leg length is adjustable to 7', in highest model. Setups can be made where headroom is low, or where great height is needed. Available in heights up to 17' and with I-beams as long as 20'. Maximum capacity is 2 tons.

Circle No. 157 on Reader Service Card

## Float Control Valve

**Product:** Float control valve, 6900 series.



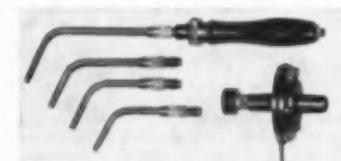
**Manufacturer:** Maid-O'-Mist, Inc., Chicago, Ill.

**Features:** Valve is precision-made, and is heavy-duty, large-capacity diaphragm-type with cast brass body, fitted with removable chromium valve seat. Opening and closing is accomplished through action of oversized copper float, linkage, and neoprene diaphragm. Can be mounted with discharge in either an upward or downward position, and inside or outside of water vessel. Non-back-siphoning when installed according to instructions. Capacities range from  $1\frac{1}{4}$  to 6 gpm. Available with 2, 8, 12, or 16" float arms.

Circle No. 158 on Reader Service Card

## Air-Acetylene Torch

**Product:** Super "Jiffy" air-acetylene soldering and brazing torch.



**Manufacturer:** Modern Engineering Co., St. Louis, Mo.

**Features:** Poppet valve in handle gives operator thumb-tip, "on-off" control. Torch tips, available in

GIVE WATER WORRIES

"THE AIR"

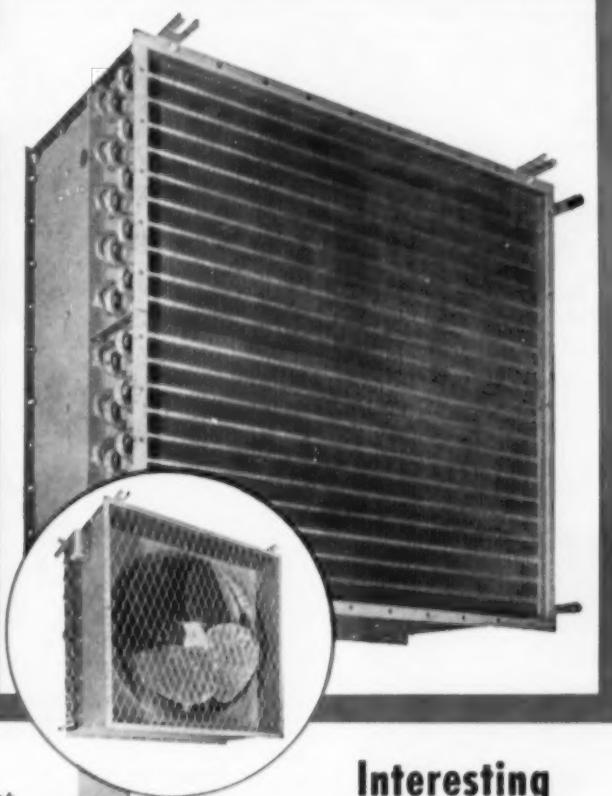
THE  
**LARKIN**  
ZEPHYRCO  
air cooled  
condenser

HANDLES UP TO 40 TONS  
AS EASY AS A BREEZE

Here's an engineering achievement that solves several of your problems in one neat package:

- 1) *The Larkin Zephyrcon ends water problems from the start.* Uses only air and electricity. Eliminates worry over high water rates or water restrictions.
- 2) *The Larkin Zephyrcon pulls the air over the condensing coils.* This distributes the air better, holds air-stream noise to a minimum, makes removal of lint and leaves simple.
- 3) *The Larkin Zephyrcon operates quietly and efficiently.* It is engineered with sufficient condensing capacity to solve your problem. Low speed motors and deep pitch fans assure quiet operation.

Add to these advantages the reliability of any product bearing the name Larkin, and you have a combination hard to surpass. For full details, see your wholesaler, or write direct to us.



### Interesting

### Facts and Features:

- 2, 3, 5, 8 and 10 ton units engineered for parallel use.
- Famous Larkin cross-fin coil—aluminum fins, copper tubes.
- Finished with corrosion-resistant epoxy-base, chlorinated-rubber enamel.
- Permanently lubricated motors operate quietly on resilient adjustable base. Motors are provided with overload protection.
- Motor wired to weather-proof external conduit box.
- Fan guard is standard equipment.
- Zephyrcon is weatherproofed for indoor or outdoor operation.
- Slotted hanger bars for ceiling or floor installation.
- Pre-punched holes for easy connection to duct-work.



**LARKIN COILS INC.**

519 Memorial Drive, S.E. • ATLANTA, GA. • MURRAY 8-3171

Circle No. 43 on Reader Service Card

six sizes, always seat in correct working position. Flame produced is approximately 4000 F, making it particularly adaptable to most silver-soldering, brazing, and soft-soldering jobs. Can be used for "sweating" solder-type joints on copper pipe.

Circle No. 159 on Reader Service Card

#### Tube-Piercing Valve

**Product:** Tube-piercing valve (Model HP-68) for larger size tubing.

**Manufacturer:** Madden Brass Products Co., Aurora, Ill.

**Features:** Pierces 3/8, 7/16, and 1/2" O.D. tube. Has one-piece brass body made from extruded bar, and



recessed sealing gasket that can't slip or fall out. Automatically centers tube for perfect piercing and

sealing. Can be installed in any position on copper, aluminum, or thin wall brass tube wherever liquid, gas, or air flow is desired. Useful in refrigeration for charging, testing, or purging; for controlling water supply to humidifiers; and wherever take-off of small amounts of water or other liquid, gas, or air is desired when conveyed through non-ferrous tubing. Can be installed quickly and easily on lines under pressure without special tools.

Circle No. 160 on Reader Service Card

#### Refrigerator Line

**Product:** Line of commercial refrigerators.



**Manufacturer:** Puffer-Hubbard Refrigerator Co., Grand Haven, Mich.

**Features:** Line includes reach-in refrigerators, salad refrigerators, upright storage freezers (shown), baker freezers, and combination, 2-temperature refrigerators. Capacities range from 22 to 96 cu. ft. 27 and 31" deep models are equipped with "Grad-U-Matic" air conditioning system. 34" models have newly designed mullion coil cooling system with dual fans circulating air to maintain positive temperatures in each section. Hardware and door hinges are heavy-duty type with adjustable features designed to open door swing within width of refrigerator. Door locks also are heavy-duty type. Door mullions are constructed to eliminate exterior sweating. Shelf area is designed for adjustable shelves or bun pan and salad tray slides. Condensing units have slide-out feature for quick cleaning and service. Water is electrically evaporated.

Circle No. 161 on Reader Service Card

Aristocrat of beverage dispensing systems is Sodamaster, and Sodamaster dealers are royally rewarded in greater customer acceptance . . . peak sales.

Customer interest is created by hard-hitting promotions. Sales are closed with presentation of documented statistics proving that (1) a Sodamaster unit pays for itself in amazingly short order; and (2) Sodamaster is the most efficient answer to operating problems facing any customer who serves mixed or soft drinks. Another sales feature is that Sodamaster is easy to install . . . easy to operate . . . easy to maintain. Sodamasters can be found everywhere . . . from neighborhood bars to plush ocean liners. Thousands of units are in use . . . still many more thousands of prospects are waiting in every community of the nation.

#### THESE SIX SODAMASTER FEATURES COMMAND INTEREST . . . CLOSE SALES

The identical beverages previously obtained from bottles—with carbonation equal or higher.

As much as 65% savings on bottled flavors, 96% savings on club soda.

A variety of flavors, instantaneous, at the finger tips.

Unmatched service speed, avoiding dissatisfaction and "walkouts" at rush periods.

Elimination of costly, troublesome, time-consuming bottle handling.

Uniform coldness and perfect proportions of beverages, automatically.

#### MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Sodamaster, Mix-Monitor Faucet and Supercharger Carbonator Equipment.

Name

Address

City

State

West Coast Plant: 16028 S. Marquardt Ave., P.O. Box 142, Norwalk, Calif.

In Canada: General Equipment Corp., Ltd., Toronto, Ont.

Circle No. 44 on Reader Service Card

58



#### Soda Fountain

**Product:** Self-contained, (36" long) Model JR-1C "Junior Bobtail" serving seven syrup flavors.

**Manufacturer:** Dunhill Soda Fountain Corp., Brooklyn, N.Y.

**Features:** Bottle storage compartment is constructed of 24-gauge, stainless steel side walls and 20-gauge, stainless steel bottom. All joints are electric welded and soldered.

ed for water-tight seal. Bottom of lining is die-formed for large radius corners and is indented and pitched to 1" brass drain for quick draining. Outside drain connection is 1"

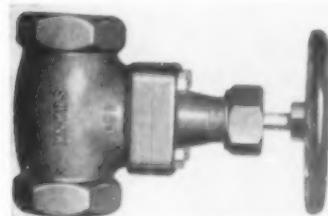


brass male pipe thread. Separate water, soda, and refrigerant coils are cast in aluminum block for protection against freeze-up damage. Capacity is 15 gallons per hour. Depth is 31" and height is 40 3/4". Storage compartment width is 23", depth 24", and height 12".

Circle No. 162 on Reader Service Card

#### Bolted Shut-Off Valve

**Product:** Bolted bonnet-type shut-off valve provided with back-seating for repacking under pressure.



**Manufacturer:** Cyrus Shank Co., Chicago, Ill.

**Features:** Swivel and self-aligning seat is of soft metal alloy. Ample ports provide full capacity. Hand wheels are well proportioned for easy operation. Available in both globe and angle types, pipe sizes 1 1/4, 1 1/2, and 2 1/2".

Circle No. 163 on Reader Service Card

#### Fastening Tool

**Product:** "Shure-Set" manually-powered fastening tool.

**Manufacturer:** Ramset Fastening System, Olin Mathieson Chemical Corp., Cleveland, Ohio.

**Features:** Fastening device enables worker to manually drive fastener through 1/4" steel. Tool seats



## Phoson solves "hidden joint"



## assembly brazing problems!

Everyday . . . this leading \*manufacturer PHOSON brazes over 5400 hard to see and reach copper joints. Even though hidden deep down in air conditioning unit assemblies, "leaker" rejections are less than 1/2 of 1%!

High capillary attraction at low temperature, without flux, make United's Phoson 6 perfect for such tough "in close" brazing jobs.

Copper U-Bend Coil connections, too, are brazed best with Phoson 6 brazing rings making high-volume automation easy, effective and profitable.

For all types of hand fed or automatic copper brazing, Phoson 6 has every desirable characteristic you want . . . high capillary attraction, lowest possible brazing temperature, greatest resistance to vibration and lowest possible cost.

\*Name on request

Contact your United Welding Supply Distributor or write . . .



# UNITED WIRE AND SUPPLY CORPORATION

PROVIDENCE 7, RHODE ISLAND

COPPER, BRASS, ALUMINUM WIRE AND TUBING • BRAZING ALLOYS

Circle No. 45 on Reader Service Card

fastener into concrete, concrete block, brick, and steel. When hit with hammer, anvil or head of tool drives fastener into surface. Pack-



aged in metal carrying kit with long and short collars,  $\frac{1}{4}$  and  $\frac{3}{16}$ " stud

holders, and drive rods, fasteners are available in two main groups—drive pins and threaded studs. Levelling plate is detachable, making it possible for fastenings to be placed into corners, and protects user from flying splinters. With tool, user can place up to 150 fasteners in an hour. Circle No. 164 on Reader Service Card

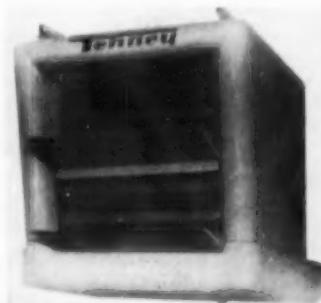
#### Unit Cooler

**Product:** "Angle-Air" unit cooler.

**Manufacturer:** Tenney Engineering, Inc., Union, N.J.

**Features:** Easy, three-step in-

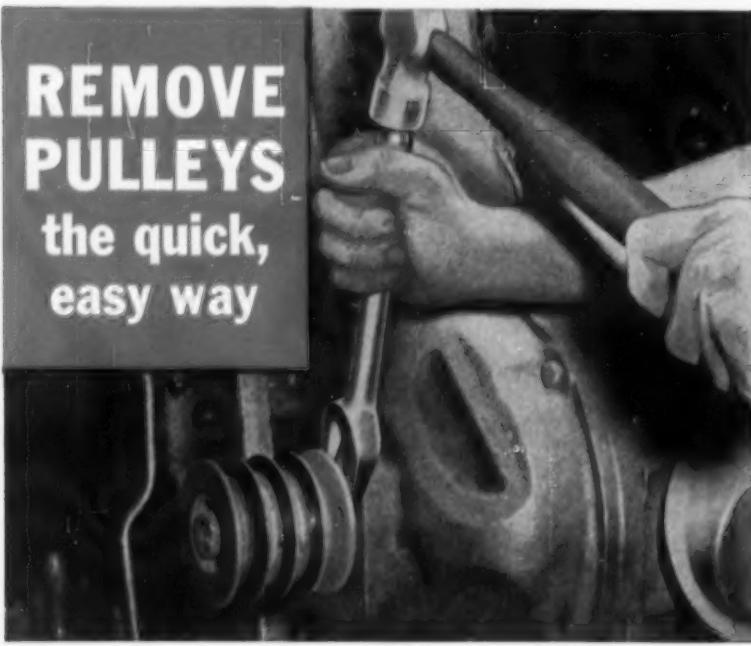
stallation: 1) Hang template mount. 2) Slide unit into place on rail hangers. 3) Connect refrigerant, power, and drain lines. Includes suction line provision for simple expansion valve bulb location, integral heat ex-



changer, sensitive aluminum "faceted" fins mechanically bonded on electro-tin-plated copper tube, adjustable louvers, and vibration-mounted motor. Available in wide range of capacities, units can be specified for particular refrigeration jobs.

Circle No. 165 on Reader Service Card

## REMOVE PULLEYS the quick, easy way



### BONNEY P-319 FORKED-WEDGE SEPARATOR

Especially useful where limited space makes the use of a screw-type puller impossible. The Forked-Wedge Separator is inserted between the pulley hub and the compressor or motor housing after removing the set screw. A few taps on the end of the separator brings the pulley off the shaft. A Bonney Forked-Wedge Separator should be in your tool box.

*Bonney makes a complete line of tools designed to meet the specific needs of refrigeration and air conditioning service men. Ask your jobber today.*

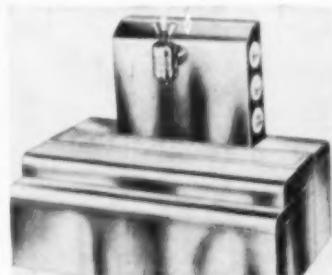


BONNEY FORGE & TOOL WORKS • ALLIANCE • OHIO  
Circle No. 46 on Reader Service Card

#### Soft Drink Dispenser

**Product:** "Baronet" self-contained, self-refrigerated soft drink dispenser.

**Manufacturer:** Carbonic Dispenser, Inc., Canfield, Ohio.



**Features:** Particularly suited for medium capacity dining and refreshment establishments. Has continuous capacity of two drinks per minute. Operates with 1/5-hp, hermetically-sealed, water-cooled condensing unit, with three, 1-gal. syrup tanks, providing sufficient syrup for 375, 6-oz. ice cold drinks. Cabinet is stainless steel, with all material coming in contact with soda water or syrup in either stainless steel or odorless and tasteless plastic rubber. Available in three models.

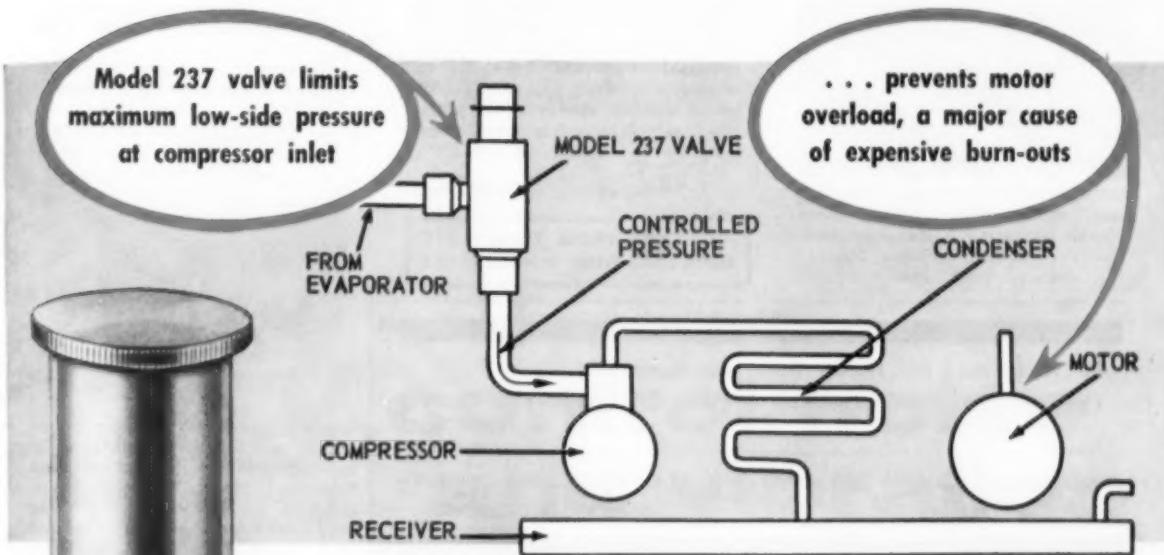
Circle No. 166 on Reader Service Card

#### Refrigerated Shelves

**Product:** Model XD-8 and XD-12 refrigerated shelves.

**Manufacturer:** Warren Refrig-

# Best overload protection a motor ever had!

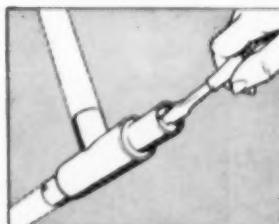


## Yours from A-P..it's the Model 237 CRANKCASE PRESSURE REGULATING VALVE



### For hot gas or electric defrost installations

- Two capacity ranges: 1.5 ton and 3 ton, F12
- Small and compact for limited space applications
- Flare or solder-type connections
- Soft solder and silver solder-type connections
- Non-chattering



**TWO ADJUSTMENT RANGES** — 0 to 40 lbs. gauge and 30 to 110 lbs. gauge. Convenient adjusting stem for setting to compressor manufacturer's recommendation.

For complete details write:



**DEPENDABLE Controls**  
for Air • Liquids • Gases • Refrigerants

**A-P CONTROLS DIVISION**  
CONTROLS COMPANY OF AMERICA

2486 N. 32nd Street, MILWAUKEE 45, Wisconsin  
COOKSVILLE, Ontario  
NIJMEGEN, Holland

erators, Atlanta, Ga.

**Features:** Front and top covered with white acid-resistant porcelain



baked onto heavy-gauge enameling steel; ends and back deluxe enamel. End molding is stainless steel; front trim of plain stainless; bumper rail stainless steel. Insulated with

fibrous glass. Fluorescent lights illuminate three display areas. Sectional shelves are adjustable. Heavy-duty, multi-finned coil on back wall at bottom, with two mechanical circulators in each length. Multi-case construction permits endless line-up of shelves with one pair of ends. Interior is white acid-resistant porcelain enamel in refrigerated areas. Length of XD-8 with ends is 8'6"; XD-12, 12'6".

Circle No. 167 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

**Nor-Lake, Inc.** 2nd & Elm, Hudson, Wis. (Phone: Hudson 523)

Please rush FREE illustrated literature on: **Freezers**  **Refrigerators**  **Coolers**

NAME \_\_\_\_\_

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STATE \_\_\_\_\_

## IT'S NOR-LAKE FOR ALL YOUR REFRIGERATION NEEDS

*Find out which unit suits you best*

*Mail coupon for FREE literature*



**REFRIGERATORS**—Handy "Reach-In" refrigerators. All have special moisture evaporator that eliminates need for drain connection, adjustable wire shelves, heavy duty blower coil that maintains constant temperature. *Three sizes!* All have thick Fiberglas insulation, embossed aluminum interiors and heavy-gauge steel exteriors.



**FREEZERS**—Big 27 cu. ft. capacity upright freezer shown. Offers high density Fiberglas insulation and individually copper-tubed shelves for faster, more uniform freezing. Heavy-gauge steel construction with aluminum liner and shelves. Heater strips around door prevent sweating. Models down to 20.2 cu. ft.



**COOLERS**—Here's a full line of Fiberglas insulated beverage coolers with disappearing doors. This beautiful LoBoy Cooler is just one of many that can save you space, time, money. 9 models of Slant-Top Coolers with recessed bases and complete stainless top construction are also available. Discover Nor-Lake. Mail coupon today.

*Nor-Lake also builds the finest walk-in coolers, cube makers, beer taps and bottle dispensers. Complete line available in stainless steel.*

For better freezing, cooling or storing, look to the nation's northland and—

**NOR-LAKE, Inc.** Hudson, Wisconsin

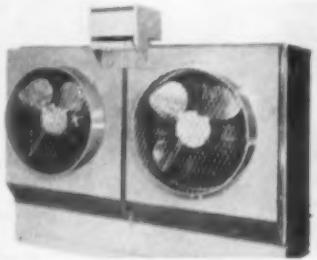
Circle No. 48 on Reader Service Card

## Cooling Tower Line

**Product:** Expanded line of "Water Saver" cooling towers to include 25, 30, 40, and 50-ton models.

**Manufacturer:** Larkin Coils, Inc., Atlanta, Ga.

**Features:** Units have wetted surfaces of all-heart redwood with nail-



less interlocked construction. Bolted panels permit easy dismantling in field. Models are belt-driven, with drip-proof motors. Gravity-type distribution basin with low pumping head over tower is used. Finished with epon base, zinc-chromated primer and two coats of melamine baked-on enamel. Inside is coated with mastic. Complete line now includes 11 propeller fan models from 2 to 50 tons capacity and seven centrifugal-blower models from 2 to 20 tons. All models are designed for outdoor or indoor use.

Circle No. 168 on Reader Service Card

## Square Boiler

**Product:** All-steel square boiler, with flush or extended jacket.

**Manufacturer:** Fedders-Quigan Corp., Trenton, N. J.



**Features:** Unit is made for both steam and hot water systems, oil or gas-fired, and comes in hot water rating sizes of 87,000, 108,000, 127,000, and 149,000 Btu. Basic design features comprise tankless coil completely submerged in hot water in upper part of boiler, 8" cleanout port for easily accessible cleaning, removable burner plates for checking chamber and burner, rear stack

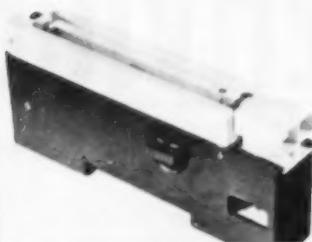
outlets, and all fittings located for quick installation. Boilers are available in two-toned jackets.

Circle No. 169 on Reader Service Card

#### Portable Psychrometer

**Product:** Compact, motor-driven, portable psychrometer.

**Manufacturer:** Friez Instrument Div., Bendix Aviation Corp., Baltimore, Md.

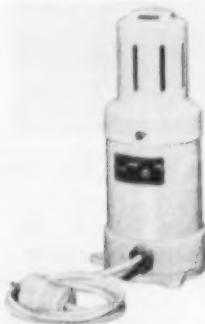


**Features:** Self-contained and powered by three flashlight batteries, instrument consists of matched wet and dry-bulb thermometer assembly ventilated by tiny fan coupled to motor. Thermometers attain accuracy of plus or minus 0.3 F at any point. Immune from radiation effects of sun, and has built-in thermometer, illumination system for easy reading in dark. Weighs 2 1/2 lbs., and is 10" long, 4 5/16" high, and 1 13/16" wide. Three-bladed, aluminum fan pulls in air at rate of more than 15' per second across thermometer bulbs, which are placed within removable air intake that provides thermal shielding. Operates in relative humidity range of from 10 to 100% and temperature range of from 10 to 100 F.

Circle No. 170 on Reader Service Card

#### Compact Ozonator

**Product:** "Ozon-Aire" weighing less than 3 lbs. for destroying odors and reducing spoilage.



**Sales Agent:** Foreign Science, Ltd., Beverly Hills, Calif.

**Features:** Output of pure ozone said to be equal to ozonators costing 11 times more. No noticeable trace of nitrous oxide when producing

ozone. Product is moisture-proof and operates at a cost less than 5-watt bulb. To oxidize or "burn up" offensive odors, product introduces pure controlled ozone into air. Unit plugs in and will inhibit growth of mold and mildew and act as effective bacteria control. Unit reduces waste, eliminates shrinkage and smear.

Circle No. 171 on Reader Service Card

#### MARLO APPOINTS REP.

Marlo Coil Co. has appointed Ward & Black Engineering Sales as its representative in the Pitts-

burgh area. Address of the newly appointed representative is 822 Chapel Way, Pittsburgh 33, Pa.

#### NEW DISTRIBUTOR FOR WORTHINGTON

Petroleum Heat and Power Co., Inc., Stamford, Conn., will act as wholesale distributor for Worthington Corp.'s line of air conditioning and refrigeration products in Long Island, N.Y. and Westchester and Fairfield county, Conn.

## Easy way to control noise and vibration



...install units  
on  
ISOMODE® PADS

- It's easy to avoid complaints due to annoying vibration and noise. When installing air conditioning units, simply set them on ISOMODE PADS. Just cut what you need for the weight of the unit, place the Pads under each corner and that's it. ISOMODE PADS swallow up vibration, muffle noise on any type floor.

Made of Neoprene, these cross-ribbed, 5/16"-thick pads cut with ordinary shears, need no cementing, resist oils and water, last for years. One standard economy package of ten 18" x 18" ISOMODE PADS gives you enough for mounting 160,000 pounds of equipment. Write for prices and detailed Bulletin No. 415.

**MB manufacturing company**

A division of Textron Inc.

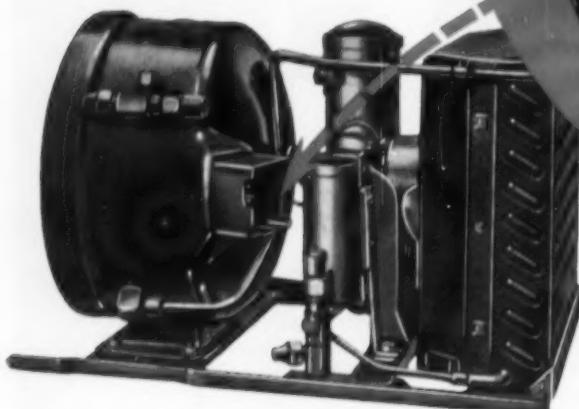
1060 State Street, New Haven, Conn.

HEADQUARTERS FOR PRODUCTS TO ISOLATE VIBRATION . . . TO EXCITE IT . . . TO MEASURE IT  
Circle No. 49 on Reader Service Card

# EASIEST HERMETICS TO INSTALL AND SERVICE

## KELVINATOR EXCLUSIVE!

*New Plug-In Relay  
is both a starting  
relay and thermal  
overload protector*



- ★ Lighter weight; more compact, simplest mounting.
- ★ All parts for servicing located at one point, on one side of unit.

- ★ Nested-Fin Condenser for best heat dissipation—highest efficiency.

- ★  $\frac{1}{6}$  H.P. to  $\frac{1}{2}$  H.P. Hermetic Units.

*For additional information write Commercial Advertising Dept., Kelvinator Division, American Motors Corp., Detroit 32, Mich.*

# *Kelvinator*

SPECIALISTS IN REFRIGERATION SINCE 1914!

Circle No. 50 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION



## CONTRACTORS . . .

*Continued from page 52*

that "just plugs in".

In a special bulletin to industry members, the BBB pointed out that the city's electrical code covering room air conditioners requires a separate or branch appliance circuit, use of the heavier No. 12 wire rather than No. 14 for units with a capacity of more than  $\frac{1}{2}$ -ton, and a receptacle for proper grounding. Installations failing to meet these standards, the bulletin advised, may overload the electrical wires, causing possible risk of electrical shock and fire.

While Bureau officials hailed the introduction of the  $7\frac{1}{2}$ -amp air conditioners as an important development in the industry, they reminded dealers that even though these units require less current for operation they still are subject to the provisions of the city's electrical code.

### FTC WINDS UP HEARINGS ON ICE CREAM CASES

Hearings in major cities on complaints by Refrigeration & Air Conditioning Contractors Association against ice cream companies allegedly engaged in the practice of giving away refrigeration and air conditioning equipment to their accounts have been completed with the past couple of months RACCA reports.

In addition to Pittsburgh and Philadelphia, hearings were conducted during June and July in Knoxville, Tenn.; Chicago, Ill.; Des Moines, Iowa; Omaha, Neb.; Rapid City, S. Dak.; Cincinnati, Ohio; and Kansas City, Mo.

According to Ray Kromer, RACCA executive vice president, the hearing examiner has declined to require respondents to produce under subpoenas certain documents and records which are regarded as important in qualifying the examples on which the complaints are based. Local RACCA groups, however, are being urged to appeal this ruling.

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

## In the new Dallas Insurance Center . . .

### Flexible *Thermaflex* keeps floor plans flexible, too!



George L. Dahl, Architects & Engineers; O'Rourke Construction Co., General Contractor; United American Insurance Co., Owner—all of Dallas

### Rigid ducting couldn't handle this job!

To allow for future rearrangement of offices, ceiling diffusers in the new Dallas Insurance Center had to be readily moveable! They are — because the architects and contractors installed flexible Thermaflex. Diffusers can be moved four feet in any direction without disconnecting Thermaflex — no complicated tearing out and refitting of rigid ducting will be needed.



You can see the flexibility assured by Thermaflex as runouts from main ducts to ceiling diffusers. This lightweight, durable, easy-to-handle metallic-laminate ducting is contributing a great deal to the usefulness of

this new building over a long period of years. This installation is a conventional low pressure system. Thermaflex was used in 5", 6", 8" and 10" diameters. It is available in diameters up to 12 inches.

Laboratory tests have proved that Thermaflex will stand  $1200^{\circ}$  F. without any sign of combustion or melting — that it will stand pressure of 25 psi, which is 5x minimum standards of the New York Board of Standards and Appeals. Thermaflex bends around corners and obstructions with minimum friction loss . . . installs quickly and easily . . . eliminates costly elbows and special fittings.

### Flexible Tubing CORPORATION

GUILFORD, CONNECTICUT • LOS ANGELES 64, CALIFORNIA

Send the coupon today! Our engineers will show you how Thermaflex can save you up to 32% on installation costs.

Flexible Tubing Corporation, Dept. 6, Guilford, Connecticut  
Please send me more information on Thermaflex.

Name \_\_\_\_\_

Title and Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 51 on Reader Service Card

**CONTROLS . . .**  
*Continued from page 41*

designed vertical surge drum, giving two individual systems for each room. The surge drums are all connected through service valves to a common 4" header running the entire length of the building. The refrigeration principal of this system is full flooding of the evaporators by recirculation. The recirculated liquid is

held at suction saturation temperature at all times, even during defrost cycle. Liquid level, and injection of fresh liquid, is maintained by a special control for this purpose.

One of the most unique things about this type of installation is that all controls are located in warm areas. Also, it should be noted that if one bank of blowers should be out of service for maintenance, reasonably good temperatures can be obtained from the other bank in the same room.

This arrangement is an aid in defrosting.

Tests have shown an even and consistent temperature throughout each room. There are no warm spots, nor are there any dead spots.

Since the entire system was designed to run completely automatically, a defrost system as near-

## Stop Algae Growth! Prevent Damage! **SPECIAL ALGAE SOLVEX**



Pictured here: An actual user.

- **Stops fungus and algae growth**
- **Safely removes slime and other deposits**
- **Neutralizes offensive odors**

Sanitize, sterilize, purify and deodorize water in your air washer or refrigerating system with Special Algae Solvex. You'll get cleaner, safe, more efficient operation and reduce damage to merchandise and fixtures.

Used in air washer systems, Special Algae Solvex helps prevent growths and spots on surfaces where chilled air is circulated. Fungus and algae growth, slime, scale, and deposits in evaporative condensers, cooling towers, ponds and other water systems are effectively controlled with Special Algae Solvex.

Safe to handle and non-toxic when used as directed, Special Algae Solvex is a sure, economical compound for safe, effective cleaning.



In handy tablet or granular (bulk) form

Order fine-quality Solvex products and alkali and acid-resistant "CC" COATING—the specially prepared protective coating for metals, wood, masonry and concrete—from your wholesaler now. Write us for the address of your nearest supplier.

**CHEMICAL SOLVENT COMPANY**  
3005 N. 16TH ST. • P. O. BOX 487 • BIRMINGHAM, ALA.

Circle No. 52 on Reader Service Card



ly infallible as possible was mandatory.

Dependability of city water supply and pressure in the area was questionable and created a temporary problem, with 20 gpm being required to defrost each unit. Possibility of a failure was minimized by separating the units, so that not more than three would require water at any given time.

Controls selected for this all important job were seven 24-hour timers, set to go through their cycle when the normal consumption of city water is at a minimum. Sequence of operation for each bank of blowers is: off refrigerant solenoids, off fans, on water, off water, delay for draining, refrigerant on, and fans on. Compressors continue to run, holding room temperature with the second bank of blowers. Since there are two timers for each bank of blowers, synchronization is accomplished by setting the clock of the second timer a few minutes behind the first.

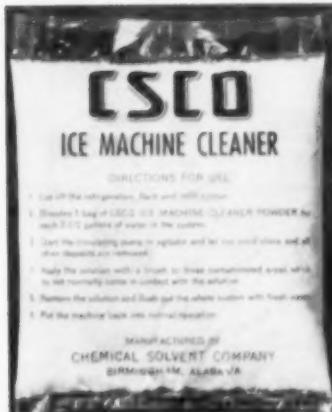
Experience has shown that very seldom is it necessary to defrost every 24 hours. In order to conserve water and reduce the cost

of defrosting, a 7-day master timer was installed to operate a relay. This relay sends out the defrost cycle, from the previously described system, on the pre-selected day. It is possible then to defrost either every 24 hours or any day or combination of days selected.

To insure a maximum of safety in the operation of a fully automatic water defrost system, a number of precautionary steps were taken. Each blower is individually equipped as if it were an entire evaporator system. Float switches were installed in each drain pan to open its water supply solenoid circuit in the event the drain became plugged. The remaining blowers in that particular bank would continue the full defrost cycle.

A water pressure switch was installed in the water supply line. This switch prevents the operation of the fans of that particular blower, in the event the supply solenoid valve failed to close.

By such arrangement, a failure of any blower to complete the defrost cycle will not prevent the balance of the blowers from operating. Tests have shown that several blowers can be immobilized with no appreciable change in temperature. Units failing to defrost would be quickly noticed, and proper steps taken to remove the cause of trouble. With all controls in a warm area, the engineer can make any necessary repairs in comfort.



**DIRECTIONS** for use are now being printed on each bag of "Cesco" ice machine cleaner powder. The powder is a development of Chemical Solvent Co. One bag is normally sufficient for cleaning two small ice-making machines or one 300 lbs.-per-day machine.

**Score a sales  
BULL'S-EYE!**

## with Temprite's BIG 3 advantages!

### A MODEL FOR EVERY NEED!

Give your customers the widest choice! Select from the Temprite line of 14 different models, including new small economy-size Cadet coolers!



Temprite Compartment Coolers are available for either bottled water service or connection to water supply. Model PCF (illustrated) provides 3-way service—perfectly cooled drinking water, 2 large trays of ice cubes, plus roomy refrigerated storage space.

Make a hit every time with  
the No. 1 water cooler line!

### 1 Standout Quality!

Temprite Water Coolers are made better to last longer . . . precision-engineered by liquid cooling experts to provide years of trouble-free service!

### 2 Styled to Appeal!

Temprite's smart, functional styling enhances any setting. Extra deep, anti-splash basin features stainless steel beauty and matchless durability.

### 3 Finest Features!

Temprite offers all these sales-building features: All-welded angle steel frame. Dual thermostats for accurate temperature control, double protection against accidental freeze-up. Hermetically sealed, lifetime-lubricated compressor. Removable front and side panels for extra easy servicing.



**Temprite Products Corporation**  
P. O. Box 72-B • E. Maple Road • Birmingham, Mich.  
Please send me complete data on Temprite Self-Contained Water Coolers.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle No. 53 on Reader Service Card



# They call it "Gold in the Ice Bin"

ARE YOU GETTING YOUR SHARE OF THIS  
PROFITABLE ICE MACHINE BUSINESS?

THE NEW ICE AGE IS HERE! Alert dealers discover big profits when they dramatize and promote their automatic ice machines! (Commercial Refrigeration and Air Conditioning, June issue) You too can find these profits with Scotsman Ice Machines.

You'll increase your sales when you sell Scotsman Machines—there are 3 capacities of Super Cubers and 5 capacities of Super Flakers to meet every need . . . sales volume goes up—attractive user prices eliminate cost objections . . . liberal profit—put more dollars in your pocket.

You're free from service worries with dependable Scotsman Ice Machines. Two simple connections cut installation costs to rock bottom. And you benefit from the Scotsman's powerful national advertising program and local hard-hitting promotions.

Round, solid Scotsman Cubes and long-lasting, economical Flakes are in demand in every hospital, hotel, restaurant, fountain, diner, drive-in and cocktail lounge. Get your share of these ice bin profits with the big line of Scotsman Ice Machines!

**Sell the best! Sell the most complete line! Sell SCOTSMAN!**

## SCOTSMAN Super Cubers • Super Flakers



Model SC-100 Super Cuber. Produces up to 110 lbs. daily.



Model SC-200 Super Cuber. Produces up to 225 lbs. daily.



Model SC-300 Super Cuber. Produces up to 300 lbs. daily.



Model SF-75WSA Super Flaker, with storage bin. Produces up to 200 lbs. daily.



Model SF-1WSE Super Flaker, with storage bin. Produces up to 350 lbs. daily.



Model SF-2WSE Super Flaker, with storage bin. Produces up to 550 lbs. daily.



Model SF-3WSE Super Flaker, with storage bin. Produces up to 1050 lbs. daily.



Model SF-1E "continuous flow" Super Flaker. Up to 350 lbs. daily.



Model SF-2E "continuous flow" Super Flaker. Up to 550 lbs. daily.



Model SF-3E "continuous flow" Super Flaker. Up to 1050 lbs. daily.

Every Scotsman Ice Machine operates on standard electrical outlets.



WRITE FOR THE NAME OF YOUR NEAREST SCOTSMAN DISTRIBUTOR

**AMERICAN GAS MACHINE CO.**

DIVISION QUEEN STOVE WORKS, INC.

198 Front Street • Albert Lea, Minnesota

Circle No. 101 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION

## GOING DOWN . . .

Continued from page 44

the entire chamber. An inflated rubber tube around the edge of the lid seals the chamber when it is lowered into place. The lid is raised and lowered by means of an overhead travelling hoist. When personnel are required to work in the chamber the door can be hoisted and moved away from the chamber to a specially constructed support. This feature leaves the crane free for hoisting heavy test units in and out of the chamber.

### Air Is Evacuated

Under maximum altitude conditions, the shell has a pressure of approximately 60 to 70 tons exerted on the long side and 30 to 35 tons on the short side. The chamber is designed for 15 lbs./sq. in. absolute differential pressure inward with an adequate factor of safety.

Air evacuated from the chamber through two 12" diameter openings, which tie into an 18" diameter line that runs under the floor in an insulated trench. A bellows expansion joint allows for axial expansion and contraction of the line between the chamber and aftercooler. The aftercooler is provided to stabilize the temperature of air exhausted to the vacuum pumps during low-altitude, high-temperature, or high-altitude, high-temperature tests.

### Coils Are Protected

Cooling water to the aftercooler is controlled from the central control board with a 2" solenoid valve. When the water is shut off, air pressure is applied and then shut off with a time-delay circuit. This effectively guarantees that no water remains in the coils, and prevents freezing of coils during low temperature operation.

From the aftercooler, air is then passed through an 18" motor-operated gate valve which is used to control the flow of air to the air evacuating equipment. The vacuum pumps cannot be started unless the 18" throttling valve is closed and the 6" entrance valve to the chamber is open. This protection prevents rapid draw-down

of the chamber and starting the pumps under full load. These two valves are interlocked back through the pump control so that when the pumps are shut down, the valves will automatically assume safe operating conditions. From this point the air is exhausted through mufflers to the atmosphere.

Water used by the entire system is reclaimed by the use of a water-cooling tower. Water is returned to a 3000-gal. hot sump, and it is then pumped through the nozzles

of the cooling tower. Water flows off the tower into an approximately 300-gal. cold sump and is then pumped into the system. Overflow from the cold sump is drained back into the hot sump which is directly beneath the cooling tower.

The cooling tower is capable of removing 1,000,000 Btuh at 95°F dry bulb and 78°F wet bulb, and is located inside the laboratory building. Air is taken into the tower through two large centrifugal blowers located in the large cold air plenum chamber. The air

number 4 in a series of ads to help you better understand the servicing of Tecumseh hermetic compressors.

**HERMAN  
HERMETIC  
says**



IT'S ALL IN  
THE BREAKS  
AS TO HOW I  
PERFORM

... give me a clean break

when you form the discharge and suction lines

The compressor or highside you receive from your wholesaler is dehydrated and charged with oil. It is clean and free of moisture. The only way that dirt or moisture can get in is while you are applying it to the job. Therefore, these simple precautions in installation will help protect your customer and yourself from getting dirt in the system.

1. Cut all tubing cleanly with tube cutter.
2. Check carefully for filings or small pieces of dirt in the tube.
3. Solder in the presence of nitrogen to prevent oxidation.
4. Use sealed tubing and do not open until ready to use.

These operations are simple and automatic to most servicemen. However, although elementary they should be foremost in your mind at all times. How careful you are in making connections, determines how well the compressor will perform.



**TECUMSEH PRODUCTS  
Company**

TECUMSEH, MICH.  
MARION, OHIO

EXPORT DEPT.:

P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

Circle No. 55 on Reader Service Card

World's Largest  
Producer of  
Compressors for the  
Refrigeration Industry

is then exhausted from the tower through duct work directly over the cold air plenum and is carried out over the roof of the building. Located in the exhaust are two large manually-operated ducts which will return a portion of the warm air back to the cold plenum. These are set to maintain an air inlet temperature of approximately 40 F minimum. The purpose for the air recirculation is to prevent freezing of the tower during the winter months. The water system control is interlocked with various

pieces of equipment (that require cooling water) to prevent their operation unless the cooling system is functioning properly.

#### NEW TEXAS DISTRIBUTOR

Anslinger Air Conditioning Co., of Corpus Christi, Tex., has been appointed distributor of Servel air conditioning products in the Corpus Christi trading area. Urban H. Anslinger is president of the firm.

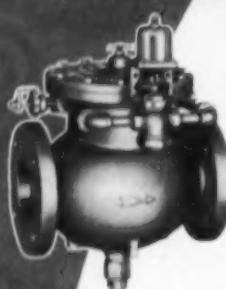
# CONTROL VALVES

FOR  
Refrigeration and  
Air-Conditioning

FREON-12  
FREON-22  
AMMONIA

WATER  
REGULATORS

BACK PRESSURE  
REGULATORS



A Line of Heavy-Duty  
Refrigeration Control  
Valves designed pri-  
marily for Medium and  
Large Air-Conditioning &  
Industrial Refrigeration

SOLENOID  
VALVES



*Write for New  
Condensed Catalog*

**REFRIGERATING  
SPECIALTIES COMPANY**

3004 W. LEXINGTON ST. CHICAGO 12, ILLINOIS

Circle No. 56 on Reader Service Card



#### NEW FIRM DISTRIBUTES GLASS FIBER PRODUCTS

Formation of Thermo-Flex Corp. to distribute glass fiber and allied products nationally has been announced by R. W. Capaul, president of the new firm. General offices and warehouse will be located at 1202 Norwood Ave., Toledo.

The new company will concentrate its efforts on products for the general industrial, textile, electrical, heating, and ventilating fields.

Capaul resigned recently as vice president in charge of general products sales of the L.O.F. Glass Fibers Co. He has been associated with the glass industry since 1948 when he joined Glass Fibers, Inc. as manager of electrical sales, later progressing to general sales manager.

#### STOCKHOLDERS APPROVE DUNHAM-BUSH MERGER

Stockholders of Bush Mfg. Co. and C. A. Dunham Co. have decisively approved consolidation of the two firms into a new company in the heating, air conditioning, and refrigeration field to be known as Dunham-Bush, Inc. Cecil Boling, president of Bush, assumes the presidency of the consolidated organization.

In a realignment of manufacturing facilities of the merged firms, air conditioning and refrigeration products now will be produced in Michigan City, Ind.; Marshalltown, Iowa; and Toronto, Canada. Certain additional heating products will be manufactured for the first time at the West Hartford, Conn. plant. Facilities at Brewster, N. Y.; Riverside, Calif.; and London, England, also will be fully utilized.

The new firm also will benefit from a national network of strategically located Dunham-Bush warehouses, and an enlarged sales engineering department to work with wholesalers, contractors, and consulting engineers in solving air conditioning, heating, and refrigeration problems.

## TUBE MANIFOLD CORP. OPENS NEW PLANT

The Tube Manifold Corp., North Tonawanda, N. Y., has opened a new plant covering 82,000 sq. ft. of manufacturing space together with new manufacturing equipment including latest type automatic hydrogen copper brazing furnaces, a complete conveyorized materials handling system and other facilities providing a continuous flow, one-floor production layout.

Tube Manifold has been a major supplier to the automotive, refrigeration, air conditioning and other industries requiring pressure cylinders, liquid receivers, disposable and refillable containers for the aerosol field and specialized products on a high production contract or original equipment basis.

## DU PONT DROPS PRICE OF "FREON" IN WEST

E. I. du Pont de Nemours & Co. has reduced tank-truck and tank-car prices of the most widely used "Freon" propellents and refrigerants in the seven western states. Reduction is .7 of a cent per pound.

New prices, now in effect, make the bulk price of "Freon-12" dichlorodifluoromethane 26.4 cents per pound, and "Freon-11" trichloromonofluoromethane, 22.4 cents per pound. Both prices are f.o.b. East Chicago, Ind., minimum transportation allowed.

The reduction also applies to all propellant solutions of "Freon-11" and "Freon-12". Tank-car price of a typical 50-50 solution is reduced to 22.1 cents per pound on shipments to Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington.

The differential between du Pont's delivered bulk propellant prices in the seven western states and the rest of the nation now is reduced from \$.015 to \$.008 per pound to encourage the aerosol industry to use west coast loaders for their western requirements.

Products affected by the price reduction will be manufactured, beginning in September, 1956, at a new du Pont plant nearing completion at Antioch, Calif.



HEAT PUMP DEALERS and power company executives—over 100 of them—attended a recent three-day conference in Tampa, Fla. The combination sales and service meeting was conducted by the Typhoon Heat Pump Co., manufacturer of the Prop-R-Temp heat pump, whose factory is in Tampa. Newest Typhoon unit has a 6-ton cooling capacity with a completely hermetic unit, and delivers 88,600 Btu on the heating cycle.

...bring  
head  
pressure  
**DOWN**

...keep  
operating  
efficiency  
**UP**

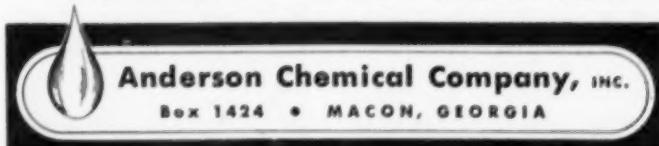
## with **anco** condenser cleaner

ANCO Condenser Cleaner removes scale and rust from condensers within 2 to 15 hours, depending on the thickness of the scale. The head pressure drops to normal and the condenser's efficiency is restored. ANCO Condenser Cleaner is an exclusive dry formula which is simply dissolved in the sump while the system is in operation. It is equally effective in evaporative condensers and those with separate cooling towers.

### *Free* WATER TREATMENT MANUAL

A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

Sold by wholesalers of air conditioning and refrigeration supplies



**Anderson Chemical Company, Inc.**

Box 1424 • MACON, GEORGIA

Circle No. 57 on Reader Service Card

## GAS INDUSTRY GIRD FOR COOLING DRIVE

The gas industry is readying itself to lay claim to a larger share of the rapidly developing summer cooling market, according to Robert H. Combs, air conditioning representative of the Oklahoma Natural Gas Company, Tulsa, Okla.

Combs made this statement in addressing 200 engineering representatives of heating and air conditioning equipment manufacturers attending the First Annual Technical Conference of the National Warm Air Heating and Air Conditioning Association in Chicago.

The desire on the part of gas utilities to build summer load and consumer sales of gas has led to much research and many test programs for various types of gas air conditioners during the past 25 years, Combs said. Gas-powered air conditioning is not at all new. But, up until now, most of the installations have been custom built.

"Today, however," Combs stated, "four manufacturers are engaged in producing complete gas engine driven air conditioning units on a production basis. In addition, several other large companies are in development stages with gas air conditioners."

Combs reported that the American Gas Association is sponsoring thirteen research projects in gas air conditioning this year covering several types of units, including a gas heat pump.

## NOR-LAKE EXPANDS PLANT PROGRAM

Completion of a plant expansion program, addition of three field representatives, and the promotion of four men at the Nor-Lake, Inc., factory in Hudson, Wis., have been announced by Harry J. Blakeman, president.

Warehouse space was increased by 32,000 sq. ft., plant facilities were upped by 15,000 sq. ft. and office space was tripled, all at a cost of about \$130,000.

Representative appointments include: Bert W. Muller, New York state; Tom Connolly, New England states; and P. G. Thornley Co., Ltd., in Canada. The latter ap-

pointment gives Nor-Lake complete Canadian representation for the first time.

Promotions were: Kenneth D. Cameron, from superintendent to plant manager; Leonard V. Skalicky, from engineering consultant to chief engineer; Harlan J. Huftel, from refrigeration department to assistant sales manager; and Virgil Becker, from material control superintendent to purchasing agent.

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

## GIBSON APPOINTS 2 NEW DISTRIBUTORS

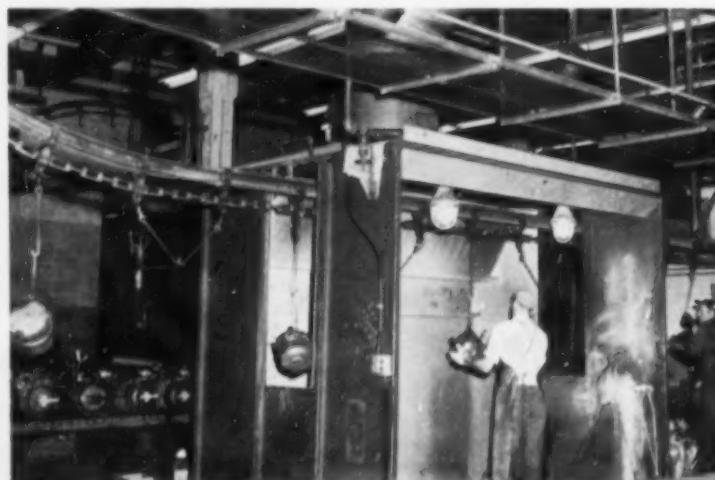
Two new distributors for Gibson residential and commercial air conditioning and heating equipment have been appointed. The Cannon Distributing Co., Charleston, S. C., will cover that entire state. Machinery Sales & Service Co., Inc., Jackson, Miss., will service the entire state.

Cannon officers are: President, N. L. Cannon; vice president, W. T. Cooper; and treasurer, J. D. Soffera. K. A. Paine heads Machinery Sales; vice president, A. F. Summer; and secretary and treasurer, J. E. McNair.

## SERVEL SMOOTHES FLOW OF COMPRESSOR PRODUCTION



**MECHANIZED HANDLING** in the manufacture of Servel refrigeration compressors and condensing units has helped to increase both production and efficiency. Electric hoists (above) assist operators in loading their machines, eliminating necessity of manual lifting of large crankcases. Mechanized conveyors (below) carry Supermetall power units from electric dehydrating racks through spray finishing booths to final assembly lines.



# You make money with LCS\*

## Schmidt REFRIGERATED EQUIPMENT

(Builders of THESCO Equipment)

Schmidt equipment has the largest coil surface in the industry. It provides the most efficient cooling at lower operating costs while maintaining a high humidity level to protect perishables.

Your customers enjoy fast, efficient, low cost operation with Schmidt equipment. That's why it will pay you to recommend and install dependable SCHMIDT Refrigeration — the one complete line with L C S.

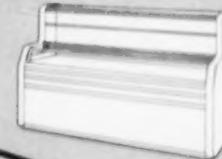
Write today for full information on LCS and complete Schmidt line.

**THE C. SCHMIDT COMPANY**

1712 John Street

Cincinnati 14, Ohio

\*LARGEST  
COIL  
SURFACE



## "All in one" REPLACEMENT KIT

A Redmond low-cost general purpose package that has everything you need to replace worn-out motors, fans and brackets for refrigeration condensers, ventilators and humidifiers:

For Fans up to 10" at 1550 R.P.M.  
adjusts vertically  $2\frac{1}{2}$ "  
adjusts horizontally  $\frac{1}{2}$ "

Here's the best way to save time and money on your replacement jobs. Redmond units are quickly adjusted. Your nearest wholesaler will be glad to supply details; or write direct for additional information.



**REDMOND DISTRIBUTORS, INC.**  
Owosso, Mich.



**REDMOND DISTRIBUTORS, INC.**  
Dept. C, Owosso, Mich.

Send Replacement Kit details to:

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

# The Commercial Refrigeration & Air Conditioning

## APPLICATIONS MANUAL

### Electronic Regulation Is Key To Matching Air Conditioning System To Varying Load

**A**UTOMATION—a much abused word in the lexicon of modern technology—has been applied to the control of human comfort for the first time in any modern office building.

Located in a subterranean "nerve center" beneath Prudential Insurance Co.'s towering new \$40-million skyscraper on Chicago's lake front, a dial-studded control panel applies the principles of electronic automation to the regulation of the building's year-round air conditioning system. This master panel makes it possible for the building's engineer to single-handedly monitor and control both the heating and cooling for this vast 41-story structure.

#### 1380 Thermostats Used

One hundred eighty electronic thermostats—each 100 times more sensitive to temperature than the human body—are strategically located throughout the skyscraper and linked to the master control panel. Supplementing these are more than 1200 pneumatic and electric thermostats. All are integrated into a network of more than 20 miles of copper tubing and nearly 30 miles of electrical wiring.

Engineers of Minneapolis-Honeywell Regulator Co., who designed the system in cooperation with Prudential's architects and engineers, Naess and Murphy, said it was engineered specifically to meet the peculiar problems created by the erection of the massive building on Chicago's wind-swept lake front. For this purpose, a new concept of temperature regulation was used.

At times, Honeywell engineers point out, some parts of the building will be exposed to icy blasts off the lake, while other parts will receive supplementary heat from the sun. In summer, on the other hand, one part of the building may be bathed in the sunshine, while the others are shaded or cooled by lake breezes.

To provide the flexibility and accuracy that was needed, engineers blended the old, long-established principles of pneumatic control, using compressed air, with the most advanced electronic knowledge.

The master control panel is patterned after giant control centers which are the "nerve centers" of modern chemical, refining and other automatic processing industries. It automatically adjusts for the different heating or cooling needs posed by outdoor conditions.

It compensates, too, for changes in temperature that occur in the morning when the building suddenly fills with thousands of people arriving for work and in the evening when they leave. It also adjusts automatically for the heat produced by lights, by office machinery, and by large numbers of people in conference rooms, auditoriums and central working spaces.

Despite this complexity, the master panel gives the building engineer supervision over all of the automatic

processes. By the flick of a switch, he can shift the building's huge year-round air conditioning plant from day to night operation or to either a summer or winter schedule.

One dial on the panel controls snow-melting equipment mounted in sidewalks at the two principal entrances.

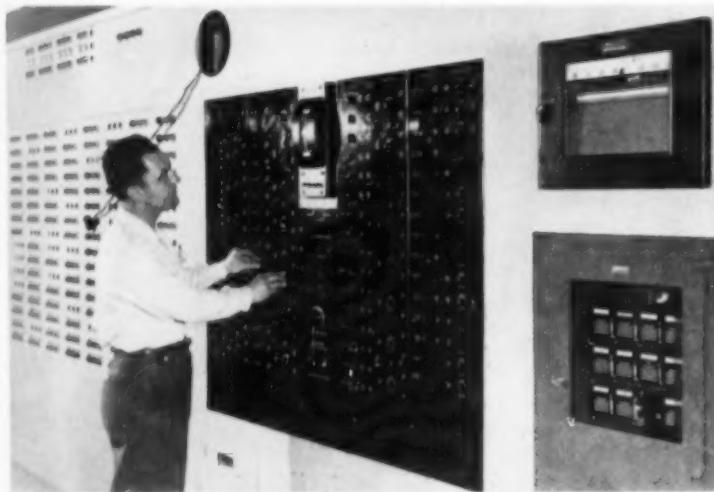
Moreover, the electronic system is designed so that it can be supplemented later, if desired, with such new electronic developments as wind direction indicators, wind velocity indicators, sun intensity meters and electronic "people counters."

#### Future Refinements Planned

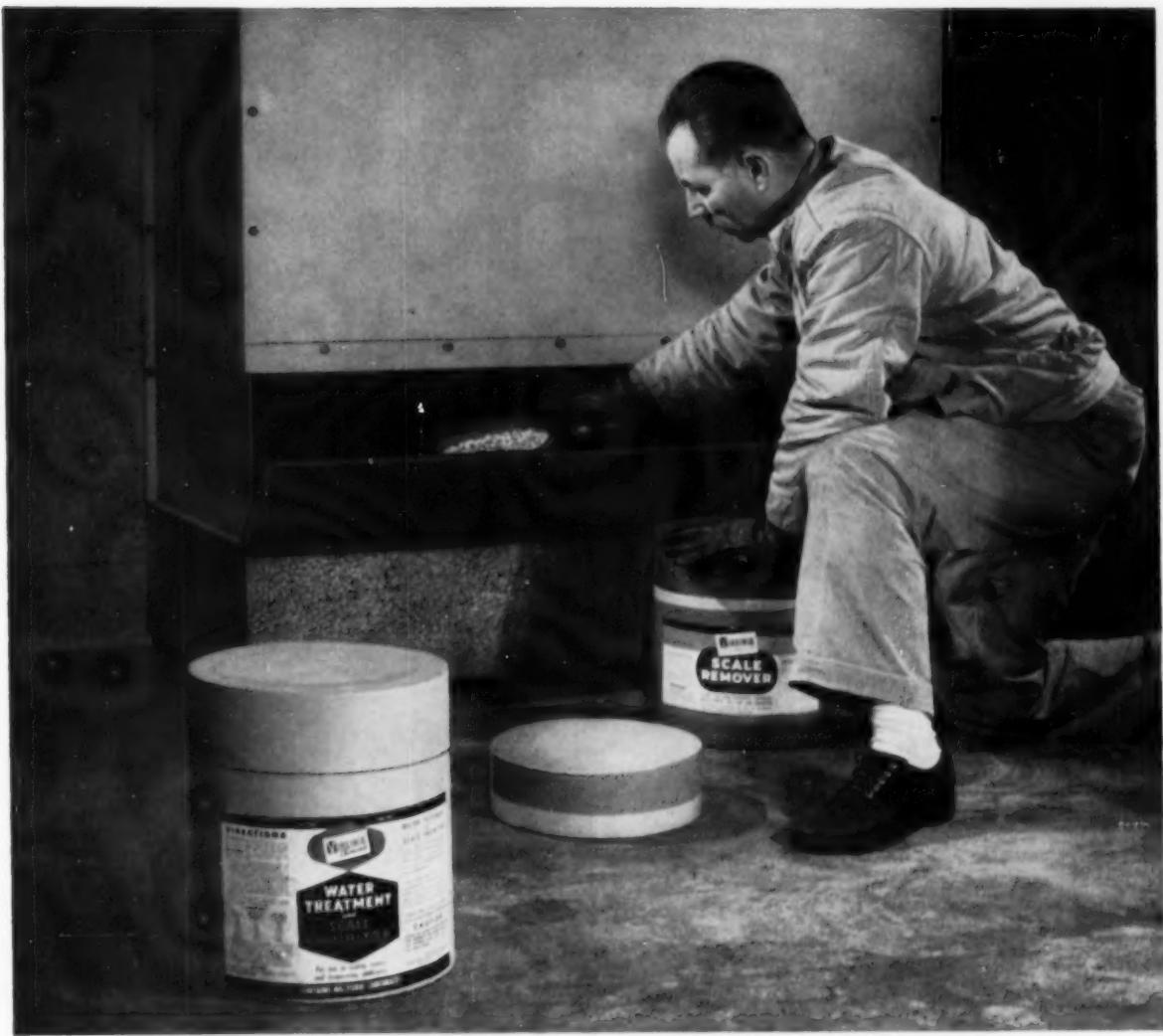
As now envisioned, an electronic "people counter" would be tied into a building's electronic elevators and automatically keep tab on the number of persons entering or leaving a given floor. It would relay this information to the master control panel which, in turn, would automatically adjust temperatures accordingly.

Another future possibility, according to the control engineers, is an electronic scanning monitor that would automatically check thermostats throughout the building every five minutes or so, and type out a message to the engineer at the control panel should anything need changing. At present, the engineer checks the temperature sensing points by pushing buttons on the control panel.

The design and operation of the Prudential system takes into account the fact that no two people are most comfortable or function most efficiently at the same temperature. Thus, the 1200 pneumatic and electric thermostats are provided for indi-



**MASTER CONTROL PANEL** located in the basement of the 41-story office building makes possible single-handed monitoring of the structure's entire air conditioning system.



## "Virginia's" new scale remover & scale inhibitor restore and maintain maximum heat transfer

Heat transfer efficiencies in water-cooled equipment can be maintained:

1. By scale and algae removal
2. By preventing formation of scale

These "Virginia" products are designed for corrective and preventive maintenance:

• "Virginia" Scale Remover (solid), a dry granular acid—safe to handle, and inhibited to protect expensive equipment without reducing its scale dissolving properties. It is an effective algaecide. Packed in 10- and 50-pound drums. For use when water hardness is less than 200 p.p.m.

• "Virginia" Scale Remover (liquid), a blend based on hydrochloric acid, also effectively inhibited to reduce corrosion on metal surfaces. This product has 50% greater scale-dissolving capacity than similar cleaners. The wide-mouthed containers reduce the danger of splashing. Packed in 1-gallon glass bottles. For use under unusually hard water conditions.

• "Virginia" Water Treatment & Scale Inhibitor, recommended as a scale preventive in reconditioned or new equipment. It is a blend of glassy polyphosphates—nontoxic to humans or vegetable life. Requires no feeders—one treatment lasts 3 months or more. Slow, controlled solubility

is the secret. Recommended for use following scale removal from fouled equipment and in all new equipment. Packed in 6- and 50-pound containers.

Order these field-tested products from your wholesaler or write Refrigeration Division, VIRGINIA SMELTING CO., 254 Jefferson St., West Norfolk, Virginia.



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76

vidual refinements in the control of temperature for individual offices and central working areas.

The system controls the building's Carrier "Weathermaster" heating-cooling equipment to provide filtered and humidity-controlled air to each floor through a system of conventional air ducts hidden in the ceiling. Private offices around the perimeter of the building contain thermostatically-controlled heating-cooling units mounted under window sills. A high velocity air distribution system serves these window units.

### PRE-SEASON DRIVE UPS BRYANT SALES 200%

Bryant Div., Carrier Corp., for a three-month period which began Feb. 1, boosted its air conditioning sales 200% over the same period in 1955.

Calling its pre-season drive, "The Modulflow Promotion," a name derived from the Minneapolis-Honeywell electronic Modulflow temperature control system, Bryant dealers were able to give their customers absolutely free of charge a deluxe temperature control system nationally advertised at \$225.

This incentive was applied in the sale of either air-cooled or water-cooled central systems in 2, 3, or 5-ton capacities.

About 50% of Bryant sales during the Modulflow promotion went into new residences of the \$20,000-\$30,000-price category. The least expensive home to have an air conditioner installed was a \$9,000 home which took a 2-ton, air-cooled unit. The most expensive was a \$150,000 home which took 3-ton and 5-ton water-cooled models.

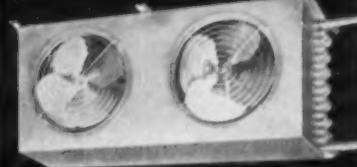
### DRAYER SALES UP 30%

For the second consecutive year, Drayer-Hanson has reported an increase of sales orders booked, in the 30%-plus bracket. Covered is four-month period, January to April. This year's statistic is 48%. Figure for 1955, same period, was a 30% increase over 1954.

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REFRIGERATION WHOLESALER**

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for SINGLE OR MULTIPLE COMPRESSOR INSTALLATION

and NO WATER REQUIRED

### SIMPLE AUTOMATIC CONTROL SYSTEM FOR WINTER OPERATION

WITT offers a simple, low price method of keeping head pressure sufficiently high in extremely low temperatures. This applies even where a multiplicity of condensing units are connected to one condenser.

Where water supply is taxed or limited, drainage facilities inadequate or water corrodes water cooled condensers, the sensible answer to your air conditioning or refrigeration condensing problem is a WITT AIR COOLED CONDENSER.

Some units are applicable for indoor or outdoor installation. Available in two to 20 ton capacities or multiples thereof.

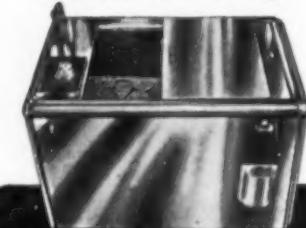
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Los Angeles 38, Calif.

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FINE LINE  
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**BEVCO**



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CAN FIT INTO YOUR LINE  
AND SELL AT A PROFIT**

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You sell quality, trouble-free cooling in these electric units that operate wet or dry. In 3 sizes...4, 5, 6 ft. Unobstructed interiors. Baked Enamel finish for beauty and sanitation.

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AUGUST, 1956 • COMMERCIAL REFRIGERATION

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save us time and money  
on call after call..."**

*says George Heinz, Jr.,  
New York service manager for*

*Servel*



**"The Amprobe is a 'must' here at Servel!"**

Every one of our mechanics, both on the bench and in the field, is equipped with an Amprobe snap-around volt-ammeter. Our records show hundreds of cases where the use of an Amprobe quickly indicated the trouble and avoided costly time-consuming guesswork.

"One of the things we like best about the low-cost Amprobe Jr. is its easily-visible, calibrated scale. But most important, it can check current without shutting down equipment—and on window units it gives us current readings at the receptacle with the simple addition of the Energizer attachment. I can enthusiastically recommend the Amprobe as *the* principal testing instrument for any up-to-date service shop." George Heinz, Jr., Servel Appliances, Inc., New York Service Dept. Manager.

There's an Amprobe for every job, every budget: from 10 amp and 250 volts capacity up to 1200 amp and 600 volts; from \$19.85 to \$67.50. See them at your jobbers today.  
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it's just good sense...

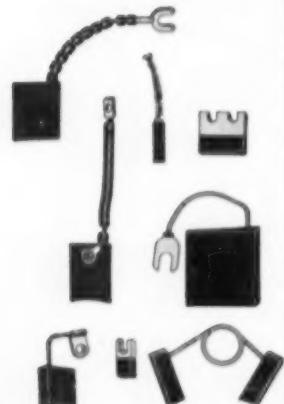
Wagner replacement parts for Wagner Motors—

Genuine Joe Says:

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Only brushes of the same grade  
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## HEAT-X UNITS COOL HOT SPRINGS MOTEL

Both heating and cooling are provided by a single, centrally-located system at the 20-unit El Rancho Motel, Hot Springs, Ark.

Heating or cooling is accomplished by the circulation of hot or chilled water from a central source through individual room units.

Chiller for the system is a Heat-X 'PC' 1500 package chiller unit with 15 tons cooling capacity. Tom Stough is manager of Southern Air Conditioning and Refrigeration Co. of Hot Springs, installing contractors.

## FACILITIES EXPANDED AT WATER SERVICE LABS

A new service annex which will provide expanded facilities for manufacturing and packaging water-treating chemicals has been opened by Water Service Laboratories, Inc., of New York.

The 10,000 sq. ft. plant, occupying the entire building at 609 W. 131st St., released space in the firm's main building at 423 W. 126th St. for enlarged laboratory facilities in which an increased program of research on water corrosion now is under way. Additional office space also has been provided.

The structure was purchased by Water Service Laboratories a year ago to help meet the demands of its rapidly expanding volume of business in the air conditioning and refrigeration fields.

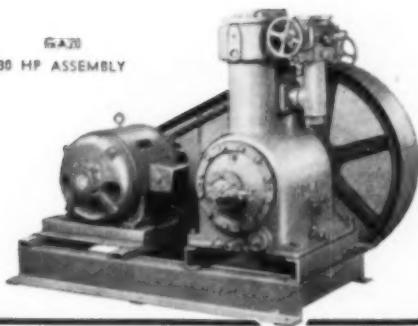
New facilities provided included underground storage tanks for chemicals, mechanical chemical-blending apparatus, and automatic equipment for packaging solid chemicals.

## NEW IMPERIAL PLANT UNDER CONSTRUCTION

First section of the new plant of The Imperial Brass Mfg. Co., Chicago, is now under construction in Niles, Ill. (Chicago suburb). Building will be one story, of steel construction, with pressed brick exterior.

When completed the plant will total over 300,000 sq. ft. It will be located on a 25-acre site.

GA20  
30 HP ASSEMBLY



Another HOWE FIRST!  
**HOLDS INSTALLATION COSTS WAY DOWN!**

HOWE AMMONIA COMPRESSOR ASSEMBLIES, in capacities to 50 H.P. in both Standard and Booster models, are now factory assembled on steel base with drive and electric motor.

**SAVE Special Foundation**

**SAVE Space**

**SAVE Installation Labor**

**SAVE Expensive Belt Guard**

The same high quality—medium speed—long life—Howe Compressors are now built into a compact assembly. Makes possible finished installation in a matter of hours after delivery. The experience and know-how gained from 44 years of refrigeration equipment manufacturing backs every Howe recommendation. Your inquiries are invited.

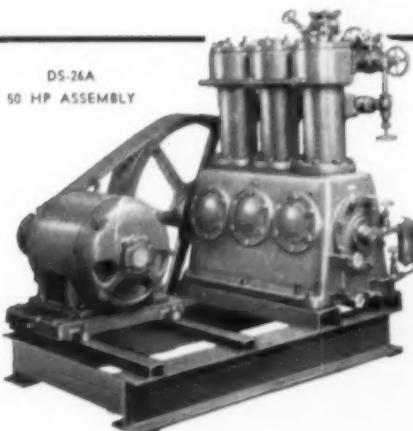
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SINCE 1912, manufacturers of ammonia compressors, condensers, coolers, fin coils, locker freezing units, air conditioning(cooling)equipment.



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& AIR CONDITIONING • AUGUST, 1956

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*NOW IN BEAUTIFUL PEARLTONE  
GREY WITH YOUR CHOICE OF 6 TOPS  
COLOR KEYED TO  
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**EYE APPEALING  
COLORS.. AT NO  
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*Featuring  
FOOT PEDAL  
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**FREE Full COLOR**

**BROCHURE . . .** of the  
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UNIFLOW . . . a pioneer builder of water coolers  
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EAST LAKE ROAD, ERIE, PENNSYLVANIA**

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## DISTRIBUTES SCOTSMAN

D. W. Stearly Co., Evansville, Ind., has been appointed exclusive franchise distributor in that area for the complete line of Scotsman Super Cuber and Super Flaker ice making machines manufactured by the American Gas Machine Co., Div. of Queen Stove Works, Inc., Albert Lea, Minn.

## COOLING CUTS DAY IN DESERT MISSILE HAUL

Installation of air conditioning in tractor cabs is saving a full day's driving time transporting guided missiles and other urgent cargo from Chance Vought Aircraft plant at Dallas to Edwards Air Force Base, 100 miles northeast of Los Angeles, according to Grant Bunnell, Chance Vought's manager of traffic and transportation.

Drivers of cabs equipped with "Frigikab" air conditioners now make the rugged 1,443-mile trip in four instead of five days, Bunnell said. Time saved represents a



**THE NEW PLANT** and general offices of Allin Mfg. Co., at 410 Hermitage Ave., Chicago. Completely air conditioned, the new quarters represent an increase of about five times for former manufacturing space, with larger areas for offices and other divisions. Albert Wittlin is president of the company.

saving in operational cost alone of between \$50 and \$60 per trip.

The saving in driving time has been attributed to the fact that with air conditioning, drivers can remain efficient on the road for longer unbroken periods of time. Drivers formerly found it necessary to stop numerous times to rest, or for refreshments to compensate for dehydration.

Savings on operational costs alone, not figuring in depreciation, are enough to amortize the cost of an air conditioning unit in about five trips to the coast.



Complete outfit, \$76.50

### For Quicker Installations PREST-O-LITE Oxy-Acetylene Trade-Mark

### Welding and Cutting Outfit

**PORTABLE**—Light and compact. Take it anywhere—use it anywhere. **MODERN**—Exclusive new blowpipe welds, cuts, and brazes. Just change the tip. No attachments or "extras" to buy.

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Oxygen and acetylene readily available in cylinders sized to meet your exact needs.

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**BEVERAGE COOLERS**  
unexcelled storage capacity  
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**INSTANTANEOUS  
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Here's the quick, easy, "painless" way to clean copper tube fittings for more secure leakproof installations! Just a quick twist of the Schaefer Brush and the fitting is clean—in a fraction of usual time, and without sore fingers. Complete range of sizes for O.D. and nominal fittings, with rustproof stainless steel wire bristles and comfortable hand grips. Write for prices.

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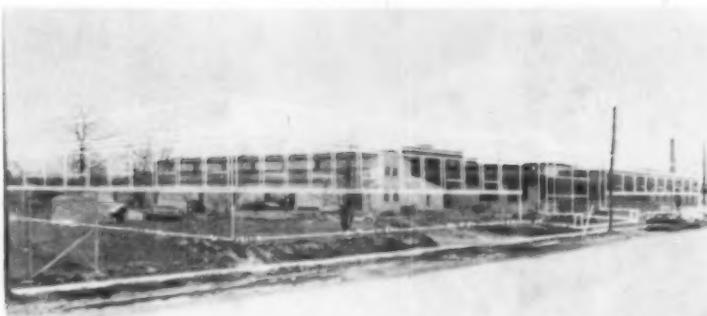
117 W. WALKER ST., MILWAUKEE 4, WIS.

Write for details on special brush needs.

**BUY SCHAEFER . . . IT'S SAFER**

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AUGUST, 1956 • COMMERCIAL REFRIGERATION



**HERE'S HOW BIG** the new administration and engineering research building of the Bryant Div. of Carrier Corp., Indianapolis, will be when it is completed. Bryant will move its offices from their present downtown location at 48 Monument Circle to the new building. Scheduled for completion by Aug. 31, the expansion involves a complete remodeling and an addition to provide four times the present office space in the building now on the site.

#### U.S. AIR CORP. MOVES PLANT TO PHILADELPHIA

United States Air Conditioning Corp. has moved its main offices and plant from Minneapolis to Philadelphia, effective Monday, July 2, it is announced by David E. Feinberg, president.

The Philadelphia operations have been established in the plant acquired by U. S. Air in January when it purchased the Jordon Refrigerator Co., Inc., which is now a subsidiary.

With the transfer of headquarters, U. S. Air has closed the Minneapolis plant which it has occupied since 1946 and which it sold last year to Pioneer Engineering Works.

Manufacture of the company's air conditioning products at the Philadelphia plant has been under way for several weeks. A program of plant additions and alterations is in progress to provide under one roof the necessary facilities for the U. S. Air operation as well as the expanded production of Jordon home freezers.

"The move to Philadelphia was dictated by the need for more efficient production facilities and a location that is geographically closer to U. S. Air's sources of supply and its principal markets," Feinberg asserts.

Little or no disruption of customer service is anticipated during the move period. RK's self-contained central station equipment, blowers and other Philadelphia-produced products will be f.o.b. Philadelphia as soon as shipments are made from there.

However, the company has already produced its seasonal requirements of packaged air conditioners, air-cooled residential condensing units, residential evaporator coils, and residential blower-coil units. These products will continue to be sold on an f.o.b. Minneapolis basis until further notice.

Approximately 35 members of the U. S. Air staff have been relocated in Philadelphia.

#### ROTARY SEAL

### Replacement Units

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#### EASY TO INSTALL ★ ECONOMICAL



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& AIR CONDITIONING • AUGUST, 1956

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## for MODERN Perimeter Heating



SIMPLIFIED  
STANDARD-SYSTEM  
WITH 5" x 3 1/4"  
BRANCHES

Duc-Pac, first to offer flat duct and fittings for modern perimeter installations! Set the pace in your area . . . provide your customers with this new, modern design for perimeter heating or cooling — on both new and home improvement installations.

Duc-Pac unassembled fittings feature "press-together" assembly that requires only seconds. Patented Inner-Lock eliminates unsightly "hammered-over" edges.



#### NEW INSTALLATIONS

Compact, neat-appearing Duc-Pac installations complete the truly "modern" appearance of new homes. 5" x 3 1/4" duct permits easy between-the-joints installation . . . flat design conforms with architecture of the home.



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Duc-Pac duct and fittings are "naturals" for "Operation Home Improvement". Ease of installation, space-saving design, trim appearance pre-sell your prospects, create satisfied customers. Let Duc-Pac help you make "'56 the Year to Fix".



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Lehigh BLU-COLD heavy duty open type units, refrigerate the storage and display cases of America's super-markets.



Lehigh Hermetic Units are thoroughly proven in millions of installations — commercial, industrial and automatic vending.



Lehigh refrigerated transportation systems — with the "Million Mile Service Record", are standard equipment on America's leading fleets and carriers.

# SPOTLIGHT

on Lehigh sales  
in diverse fields

From super-market to super-automobile,

Lehigh compressors and condensing units are rendering faithful service — widening the channels of industry, transportation and modern living. Lehigh's wide variety of models and capacities meets the challenge of newer industrial designing — and Lehigh's built-in quality and proven economy of operation satisfies the engineers demand for reliability. Whatever your field or problem the LEHIGH TEAM invites your inquiry and can help you by drawing on its world-wide and varied experience.



Lehigh's truly fabulous V-93 automobile air conditioning compressor is the most advanced unit of its kind and is used on top quality cars.

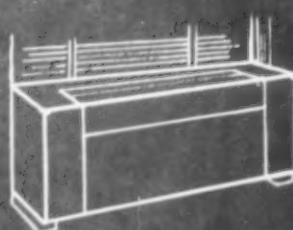
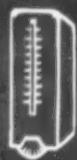
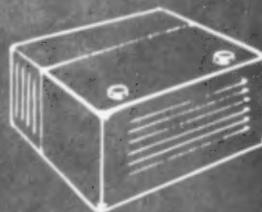
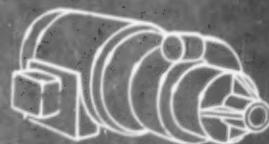
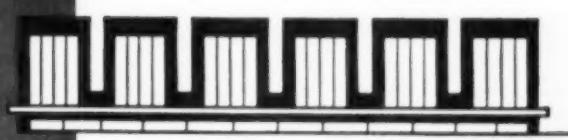
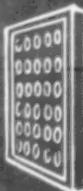
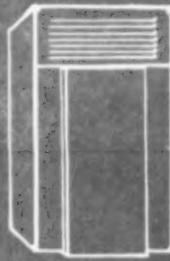
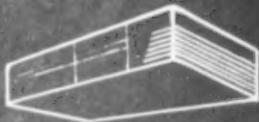
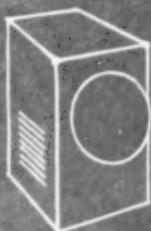
**Lehigh Manufacturing Co., LANCASTER, PA., DIVISION OF LEHIGH, INC.**

Export Dept., 13 E. 40th Street, New York

Circle No. 72 on Reader Service Card

# Air Conditioning Section

COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



## READER'S GUIDE

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**This seal is your assurance of  
a successful installation every time**

The American Blower Packaged Air Conditioner that bears this seal is the result of American Blower's 75 years' experience as a leading producer of air-handling and conditioning equipment. And it's your customer's assurance of years of trouble-free air conditioning. Get all the details today on how easy and profitable it is to handle the attractive, competitively priced American Blower Packaged Air Conditioner. Write American Blower Corporation, Detroit 32, Michigan.

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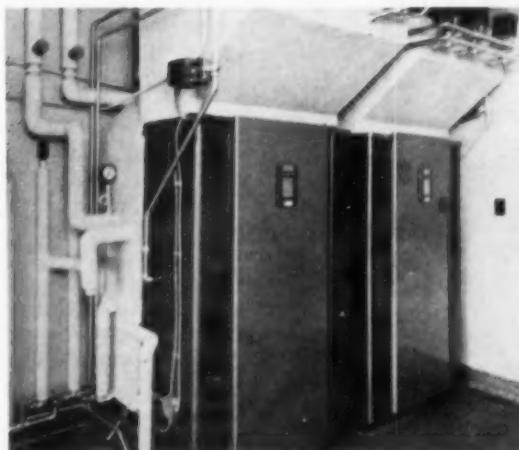
Division of **AMERICAN-Standard**

**PACKAGED AIR CONDITIONERS**

Circle No. 73 on Reader Service Card

$$2 \times 5 = 16$$

... that may be faulty arithmetic, but it accurately describes this hospital system in which "pre-conditioning" coils are used to enable two 5-ton units to deliver 16 tons of cooling capacity



**COOLING CAPACITY** of 16 tons is provided by the two 5-ton packaged conditioners shown in the lower photo. Air is delivered into conditioned areas through ceiling diffusers like those in upper photo. "Pre-conditioning" coils make the plus capacity possible.

WHEN they say "Sixteen Tons" at Mercy Hospital in Canton, Ohio, they're probably not referring to the popular song of the same name. Chances are they're talking about the 16 tons of air conditioning capacity obtained with 10 tons of packaged equipment through an ingenious "pre-conditioning" coil arrangement devised by Max Weisbrod of Refrigeration Distributing Co., General Electric distributor-contractor firm.

The air conditioning system serves four operating rooms in the hospital, plus an adjoining sterilizing, instrument and scrub-up room. These rooms are on the hospital's sixth floor, and the equipment—two 5-ton packaged air conditioning units—is set in the doctors' room on the fifth floor.

The units use 100% fresh air, with a humidifier installed in each one. Humidity in the rooms is maintained at approximately 55%.

The two pre-conditioning coils are located in the fresh air inlet of each of the two air conditioning units. Water is introduced into these pre-conditioning coils at approximately 55 F, to temper the air and effect economy of operation. After passing through the pre-conditioning coils, the water, which leaves these coils at about 65 F, is passed through the cooling system of the condensing units. It leaves the condensing units at about 95 F. The water from the pre-conditioning coils also is used for the reheat of various zones to maintain desired temperatures. These zones have water coils operated by automatic water valves.

The existing exhaust system in the various rooms was used after the new air conditioning system was installed, with the exception of the eye operating room,

*Continued on page 104*

**YEAR-ROUND** use of this new civic auditorium in Lakewood, Ohio, is assured by installation of a central-station air conditioning system. Air is distributed from the ceiling through 34 supply grilles, and returned through grilles located above the exit doors near the stage, and along the rear wall.

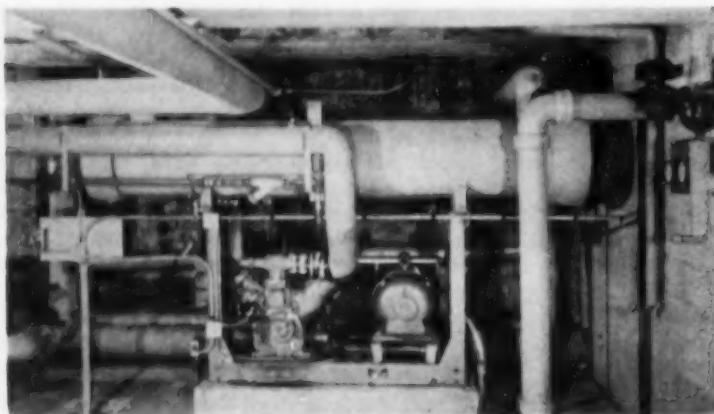


## ***Taxpayers Get Their Money's Worth***

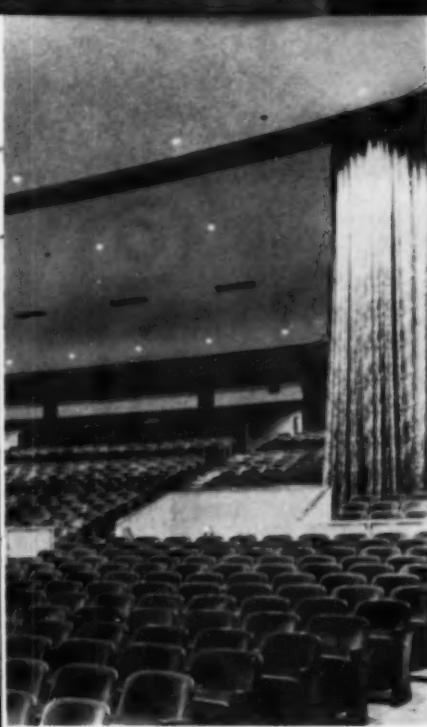
... from air conditioned civic buildings that can attract maximum usage the year around, but tax dollars still have to be spent wisely. Here's how one community achieved this dual goal through the year-round system installed in its new civic auditorium

**C**OMMUNITY sponsored and financed facilities must, wherever possible, serve their intended purpose the year around, if the residents of the community are to get the most for their tax dollars. Air conditioning, therefore, has become an important consideration in the design and construction of most modern civic structures.

This was certainly true in the case of the new civic auditorium in Lakewood, Ohio, a suburb of Cleveland. The city's board of education, under whose direction the new building was planned and erected as an adjunct to Lakewood high school, decided early that air conditioning was a virtual "must" if the auditorium was to be used



**POWERING** the cooling system is a 50-ton reciprocating compressor using Freon-22 and driven through V-belts by a 50-hp motor. Mounted above the compressor are the condenser and water chiller.



**3500 CFM** of air is forced into this office equipment cleaning room through the duct over the doorway by a roof-mounted blower in order to balance the 3500-cfm fan used for exhausting fumes. This protects the building's air conditioning system by literally throwing across this open archway...



## A Curtain of Air

for any warm weather activities.

At the same time, ever mindful of financial considerations, the board was determined that the system selected should prove as economical as possible, consistent with the job of providing all-weather comfort within the \$1,200,000 building. The result was a system using chilled water storage in order to reduce the capacity of the refrigerating equipment required, and thus hold both initial expense and operating costs to a minimum.

The auditorium has a seating capacity of 2000, plus space on the 91 x 38' stage for as many as 500 persons during such activities as high school graduation exercises. To preserve a certain intimacy in so large an audience, seats are all on one floor, rising in a graceful sweep from the stage. Should a smaller audience be involved, a unique dividing curtain can be drawn from side to side across the midsection of the seating area.

The refrigerating system consists of a 50-ton Worthington reciprocating compressor utilizing Freon-22, which is driven thru V-belts by a 50-HP motor. Support-

*Continued on page 102*

**T**HE fact that Arizona state law specifies that all rooms used for spray-cleaning of typewriters and other office machines must be left open posed an unusual problem recently for Climate Control Co., air conditioning dealer in Phoenix.

This firm was installing a 28-ton air conditioning system in the new two-story building of Walsh Brothers, local office supply and furniture dealers. An important factor in this installation was an 18 x 12' room for cleaning office machines. This room was adjacent to the office machine repair department.

The cleaning room contains a series of four galvanized metal booths along one wall in which volatile solvents are sprayed to remove accumulative grease, lint, rust, and corrosion from all types of office machines. The room likewise contains dip tanks in which the chassis of office machines must be dipped for cleansing action.

Elaborate safety precautions were observed, such as the installation of vapor proof incandescent lights over each booth and the use of frictionless flooring material to guard against sparks. To comply with the law, a 36" wide connection between the cleaning room and the repair shop is simply an open archway, containing no door of any kind. Safety specifications likewise called for the installation of a 3500 cfm exhaust fan over the spray cleaning booth to whirl away the fumes as machines are sprayed.

This created a serious problem in connection with the air conditioning system, as the action of the exhaust fan naturally would pull cool air from the first floor of the store into the cleaning room, exhausting it along with the fumes.

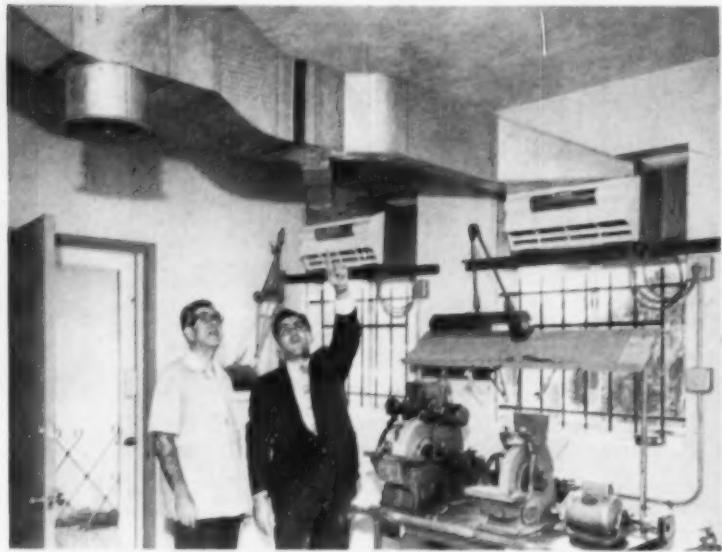
After considerable study, Climate Control Co.'s engineers eventually decided that the only possible means of completely exhausting the air from within the cleaning room, while at the same time protecting the first floor air conditioning, would be to provide a "pressure balance" between the cleaning room and the adjoining repair shop.

The ultimate solution was the installation of a separate 3500 cfm input blower on the roof of the building directly over the cleaning room, immediately inside the entrance. Both the exhaust fan and the input

*Continued on page 113*

# Central Cooling with Window Units

**Y-DUCT CONNECTION** enables two window air conditioners to serve a suite of offices 70 feet long and 10 feet wide. Explaining the arrangement to Dr. Charles Rhyon is Sidney Halpern of Major Appliances, Inc.



Sounds paradoxical, doesn't it? But this distributor did it by tying two 1½-hp units into 60' of ductwork

**T**WO window-type room air conditioners operating as a central system are handling satisfactorily cooling of the entire establishment of a Coral Gables, Fla., optometrist, including three private offices, reception room and workshop. The installation has been described as the first of its kind by Major Appliances, Miami, the distributor which made the installation.

The 1½-hp air conditioners are installed high on two windows in the workshop of Dr. Charles Rhyon, of 58 Miracle Mile. A Y-shaped duct joins the two units there, to bring the cool air through a false ceiling and into individual outlets in the reception room and each of the three private offices. The space cooled by the unique system is approximately 70 feet long by 10 feet wide.

One of the air conditioners is connected to a time clock that turns the system on half an hour before the office is opened each morning, so that the area is comfortably cooled before the doctor arrives.

Comparatively few problems were encountered in making the installation. However, one of them was the

*Continued on page 105*

**FALSE CEILING** carries cool air to private offices and reception room. Air outlet shown at top of photo serves the workshop.



# Here's all you need to make '56 greatest of the green years

## COOLING EQUIPMENT SALES



## MUELLER CLIMATROL'S long green line offers dealers top opportunities

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Circle No. 74 on Reader Service Card

& AIR CONDITIONING • AUGUST, 1956

# ROOM COOLERS...

*they can make sense  
for hotel use*

by Edward Dowis

**H**OTELS, which long have considered air conditioning of restaurants and public places a necessity, are now including many or all of their guest rooms. The hotel which does not offer air conditioned accommodations is rapidly coming to be considered obsolete. Systems involving every type of equipment, including conventional central, high velocity, chilled brine, room conditioners and package units of all sizes, are being planned and installed. In cost, these projects run from a few hundred dollars to more than a million.

A number of power consumption tests have just been completed on 32 window air conditioners recently installed in a Cleveland hotel. The units are under complete control of room occupants and have no coin switches or other devices to discourage maximum use. They are all  $\frac{1}{2}$ -hp units except one, which is  $\frac{3}{4}$ -hp. Exposures of the conditioned rooms are west and south and on the two top floors, so they have the highest cooling loads of any rooms in the building.

These tests proved of value in showing actual operating cost per unit under varying conditions of temperature and occupancy. This is helpful in planning future air conditioning projects, where various types of equipment may be under consideration. Operators of the hotel are using results to ascertain total power cost chargeable to air conditioning by all room units, even though some are connected to general power and lighting circuits.

Conditioners are standard 115 volt models, with built-in thermostats. They are served by a 120-208 volt, three-phase, four-wire system. Single-phase circuits of No. 10 wire, equally divided between the three-phase mains,

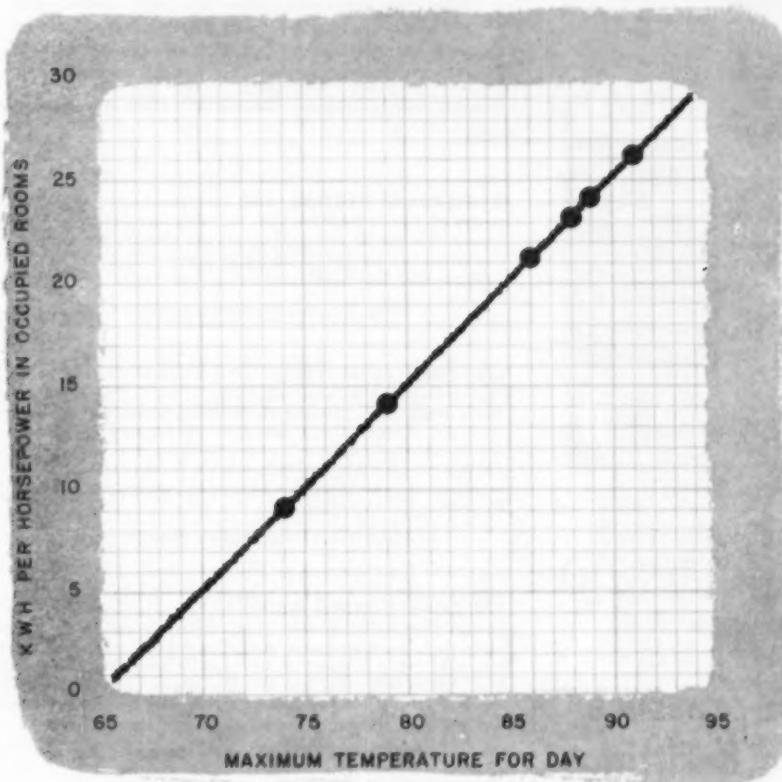
each serve two conditioner outlets. A kilowatt-hour meter was borrowed from the electric utility company and connected to mains serving the conditioners only. Power consumption, number of conditioned rooms occupied, and maximum, minimum and average temperatures as reported by the weather bureau, were recorded daily.

Maximum temperature for the day, rather than average or minimum, seemed to determine average power demand per unit. With two or three exceptions, maximum daily temperatures accurately indicated consumption as registered by the meter. The exceptions were on days, such as Sundays, when maids were not present to shut off units when guests checked out or when rooms were occupied for only parts of days.

Tests indicate that demand starts when outside temperature exceeds 65 F and increases consistently at the rate of one kilowatt-hour per horsepower for each degree above 65 F maximum. Thus, to estimate power consumed by all conditioners, it is only necessary to multiply the total horsepower of conditioners in occupied rooms by the amount by which maximum temperature exceeds 65 F.

Results of the test are shown in the accompanying graph. At 65 F or lower, no power should be used. At 95 F maximum, 30 kwh are required for each horsepower. Other temperatures registered consumption falling on a straight line between these two positions. Maximum temperatures for the days for which the graph was plotted ranged from 74 to 92 F. Where two or more days registered the same maximum temperature, average consumption was used in the graph.

*"Such factors as power consumption, operating costs, unit efficiency, power factor, and equipment noise are important to hotel operators . . . and good sales ammunition for dealers."*



**POWER CONSUMPTION** of room air conditioners actually installed in hotel rooms under normal conditions of occupancy are charted on this graph in terms of kilowatt-hours per horsepower per day. Maximum temperature for the day, rather than average temperature, was used, because this seemed to determine average power demand per unit.

Electrical tests were made on individual conditioners. These are all of good quality and standard make. The  $\frac{1}{2}$ -hp units require 830 watts, including 100 watts for fans. This amounts to 1760 watts per horsepower. Since average kilowatt-hour consumption for a 95-degree day is 30, running time must be  $30 \div 1760$ , or slightly more than 17 hours on the hottest days.

For those considering installation of a large number of room conditioners, certain observations on efficiency and power factor are in order. Deducting 100 watts used by the fans, 780 watts consumed by a motor doing only  $\frac{1}{2}$  horsepower of work represents an efficiency of only 50%. It is possible that the unit under test was conservatively rated and was actually doing more than the rated half horsepower. Since the user pays for kilowatt-hours, selection of equipment with high overall efficiency has a direct bearing on operating cost.

Power factor is a term rarely understood by purchasers and often ignored by sellers. It is the ratio of watts, as measured with a wattmeter, and volts times amperes. The unit under test required 10.5 amperes at

115 volts or 1207.5 volt-amperes. 830 watts divided by 1207.5 volt-amperes gives a power factor of 73%. High power factor motors require less amperage than those of low power factor, and consequently can operate on circuits of smaller wire size.

Manufacturers sometimes sacrifice efficiency for high power factor in designing motors, particularly those recommended for plugging into residential lighting circuits. Air conditioner efficiency can be measured only in terms of Btu per hour per kilowatt. Manufacturers do not usually publish this information in their specifications due to the highly competitive nature of the room conditioner business. It is available, however, to the dealer who is figuring the installation of a room conditioner system. In general, larger units have better efficiency and power factor than smaller ones.

Most institutional purchasers desire one year full service in addition to the five year warranty on the refrigeration unit. The dealer who can make a proposal covering removal at the end of the season, storage,

*Continued on page 112*

Circle No. 75 on Reader Service Card



## "TOPS" by EVERY TEST

Capacities to  
150 G.P.M.



Heads to  
600 Ft.



### AURORA® APCO Two Stage Pump for High Pressure Service

APCO is the highest development of the Turbine-Type Pump. Unsurpassed for small capacity, high head duties. Handles non-lubricating liquids almost indefinitely without wear. Suited to "1001" duties. Write for Bulletin "III" or Condensed Catalog "M".

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High-angle seat  
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Standard flanges:  
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Full opening; developed for heavy duty

Are preferred for high-pressure services, 300 to 1500 lb., 300 degrees. Sizes  $\frac{1}{4}$ " thru 14". Stocked by Frick Distributors, the world over. Get new catalog with prices, weight, dimensions, working pressures, parts and useful tables.

Frick line includes fittings, safety valves, gauge glasses, return bends, manifolds and welded work.

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**Frick Co.** U.S.A.

Circle No. 76 on Reader Service Card

92

## USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

**CLASSROOM HEATING** with "Linoventilator" system is the theme of Vulcan Radiator Co., Catalog No. LV-400, illustrated. 8-page booklet in color discusses operational and application characteristics as well as cost and space-saving features. Specifications and dimensional data also is provided.

Circle No. 120 on Reader Service Card

**INCREMENTAL SYSTEM** of air conditioning for office buildings and other multi-room structures is outlined in 24-page brochure produced by Remington Air Conditioning Div. of Remington Corp. Amortization tables show owning and operating costs per square foot per year for various initial and operating costs per ton of refrigeration. Conversion factors are included for various areas per ton and amortization periods range from 5 to 20 years.

Circle No. 121 on Reader Service Card

**AIR CONDITIONING GUIDE** to help the installer properly design a domestic winter air conditioning system using prefabricated, pre-engineered, streamlined trunk, and stack fittings is one of many features of 24-page Catalog No. 55 available from Adelta Mfg. Co., Inc. Detailed charts and tables describe standardized pipe, ducts, and fittings for perimeter, conventional and gravity systems.

Circle No. 122 on Reader Service Card

**REGISTERS AND GRILLES** are described extensively in 48-page products Catalog No. 8 produced by Louvre Mfg. and Sales Co. Complete line of stock products is illustrated along with technical information, dimensions, schematic drawings, and list prices of most popular sizes. Installation and engineering data, information and drawings of special attachments, and capacity charts also are included.

Circle No. 123 on Reader Service Card

**INEXPENSIVE PUMPING OF CONDENSATE** from drip pans is offered as another use for ejectors in diagrammed folder, in color, prepared by Penberthy Injector Co., Div. of Buffalo-Eclipse Corp. Explained and illustrated is method whereby units, operating on discharge water from condenser coils, create suction that pumps condensate from drip pan into main drainage line. Selection charts and tables show operating performance, prices, and dimensions.

Circle No. 124 on Reader Service Card

**EIGHTEEN DIFFERENT WAYS** to install self-contained central system air conditioners are described in simplified, 24-page manual (A.I.A. No. 30-F-1) produced by Amana Refrigeration, Inc. Easy-to-follow drawings and diagrams, with brief text descriptions, present various ways for installation. Contents of installation kits available as optional equipment also are discussed.

Circle No. 125 on Reader Service Card

(More Air Conditioning Literature on page 94)

# Modern cure for defrost blues!

**NEW!**

Paragon

## 5100 series

makes commercial  
defrost systems  
100% automatic

PARAGON engineering scores again! Helps you modernize customers' refrigerating systems with a low-cost, simple changeover that cures haphazard defrosting for all time!

New 5100's time control initiates the defrost cycle, and a small built-in solenoid (when energized by a remote thermostat or pressure switch) terminates the cycle. There's more—an adjustable mechanical fail-safe overrides the solenoid so defrost cycle can be terminated at 45-minute multiples—regardless of solenoid action.

**YOU PROFIT** by eliminating a minimum of two service calls per year. With the 5100 on the job, seasonal temperature adjustments common to most systems are totally eliminated.

**YOUR CUSTOMERS PROFIT** because new 5100 fail-safe feature eliminates danger of food spoilage. Equipment *cannot* remain on "off" cycle after normal defrost period is over.

### A snap to install!

Installation diagrams and complete operating data furnished in each carton. Unit has 24-hr. dial; 1 to 8 defrosts per day. New 5100 is powered by a long-life Telechron 4-watt heavy-duty motor—a quality product throughout.



5100 series special  
design takes advantage  
of existing thermostat  
in electric heat systems

Easy hook-up eliminates buying  
extra thermostat. Simplifies your  
installation, saves customer's extra  
expenditure.



Order the new  
5100 series  
from your  
distributor --  
or write:  
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# PARAGON

Also write for complete  
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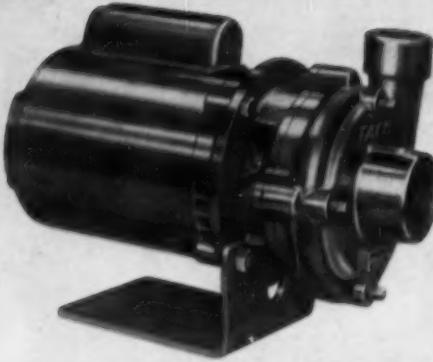
# ELECTRIC COMPANY

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OF TOP-QUALITY TIME CONTROLS

# NEW FROM TACO

SERIES 170 CENTRIFUGAL PUMP FOR  
AIR CONDITIONING INSTALLATIONS



Experience, research, quality control production . . . standard with Taco in the long-time manufacture of domestic hot water heating circulators . . . are the basic reasons why the new 170 series pumps fully meet the precise requirements for all installations. Note the following features that assure peak performance:

**MOTOR** — Motors regularly furnished are 3450 R.P.M., 60C, Single Phase, with permanently sealed ball bearings. Motors with other characteristics available.

**MECHANICAL SEALS** — 2 piece type for easy replacement; self-adjusting, self-lubricating.

**IMPELLER** — Closed type. Balanced for smooth, noiseless, efficient operation.

**VOLUTE** — Fine-grained cast iron with brass wearing ring. Designed for four position discharge.

**MOUNTING** — Heavy stamped steel base — yet flexible enough to permit slightly out of line connections without damage to pump or noisy operation.

**LUBRICATION** — None required.

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Circle No. 78 on Reader Service Card

94

## AIR CONDITIONING LITERATURE . . .

Continued from page 92

**HOW TO SAVE \$18,000** a year in maintenance costs is told in new product Bulletin No. 250-A-1, entitled "The New England Life Electro-Matic Story," released by American Air Filter Co., Inc. Maintenance problems encountered in an insurance company building are explained and savings in operational costs are pointed out.

Circle No. 126 on Reader Service Card

**REVISED LITERATURE** in two fan bulletins (DS-348B and DS-348F) by Trane Co., on its line of Class I & II centrifugal fans, has been announced. Housings for centrifugal fans are smaller, allowing for installation of equipment in 3 to 5% less space than previously possible. Also, in fan sizes 12 through 36", new type of all-welded housing support is used. These and other changes are described.

Circle No. 127 on Reader Service Card

**INTERCHANGEABLE PARTS** are a feature of the new type "GS" pumps produced by Dean Brothers Pumps Inc., and described in Circular No. 190 available from the company. Only three parts—impeller, casing and back head cradle—vary with the size and capacity of the pump. All other parts are the same throughout the entire line. Capacities extend to 600 GPM, and pumping temperatures cover a range from minus 40 F to plus 350 F. Pumps are designed for general service and chemical service.

Circle No. 128 on Reader Service Card

*(Turn to page 54 for more Useful Literature)*

## Your Sales are the payoff

**AUTOMATIC KUBER**

**AND LA CROSSE GIVES YOU MORE OF EVERYTHING YOUR CUSTOMERS WANT MOST IN COMMERCIAL REFRIGERATION EQUIPMENT**

**SELF CONTAINED BOTTLE COOLER**

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**THE LINE THAT'S PROFIT DESIGNED FOR YOU**

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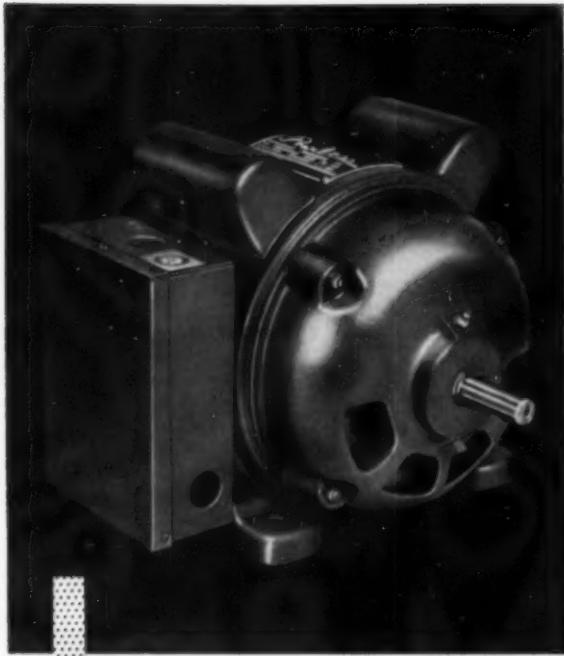
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Circle No. 42 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION



**Newest  
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in Refrigeration  
Duty Motors**

● This trouble-free motor starts and runs refrigeration compressors under the most severe conditions. It has just three parts which wear because of motion or electrical contact — the bearings; contact points on the stationary part of the switch; and the centrifugal parts of the switch. Excellent design holds wear on these parts to a minimum. Servicing is practically eliminated. Motors are Underwriters' approved.

Write for Peerless Refrigeration Motor Bulletin. It shows recommended wire sizes, construction features and answers those questions asked most often by men who service and distribute refrigeration duty motors. It shows you how motor service and maintenance can be held to a minimum.

ELECTRIC MOTOR DIVISION  
**THE Peerless-Electric COMPANY**  
FANS - BLOWERS - ELECTRIC MOTORS - ELECTRONIC EQUIPMENT  
WARREN, OHIO

Circle No. 66 on Reader Service Card  
& AIR CONDITIONING • AUGUST, 1956

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LOUISIANA • TEMPLE EMANU-EL, DALLAS,  
TEXAS • HULL #2290, NEW YORK, N.Y.

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(Division of National-U.S. Radiator Corporation)

Circle No. 80 on Reader Service Card

# WHAT'S NEW

## in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

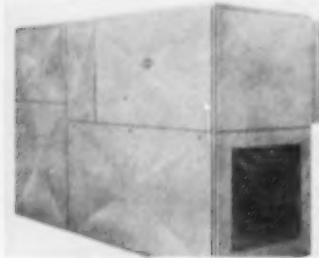
(For more New Products turn to page 56)

### Packaged Conditioners

**Product:** Two redesigned packaged air conditioners (AEGR and SCR) ranging from 7½ to 60 hp.

**Manufacturer:** Heating and Cooling Div., Union Asbestos & Rubber Co., Chicago, Ill.

**Features:** Packages are designed for stores, large offices, and industrial installations. AEGR has evap-



orative condenser and SCR utilizes water-cooled condensers. Either can be equipped with steam, non-freeze, or hot water heating coils. AEGR is available in 7½, 10, 15, 22½, 30, 40, 50, or 60-hp models. 10 through 30-hp and 60-hp units have multiple compressors and multi-refrigeration circuits, one for each compressor, which permit complete control of both temperature and humidity. Only one system operates under light load conditions and remaining systems cut in automatically as cooling load increases. Matched evaporative condensers provide water savings up to 95%. Standard AEGR has four-row cooling coil but can be equipped with six-row coil for high latent load needs. SCR packages utilize either direct water supply or water tower, and are available in same capacity range and multiple circuit arrangements as AEGR.

Circle No. 137 on Reader Service Card

### Condensing Equipment

**Product:** Line of air-cooled condensing equipment for residential and commercial air conditioning and refrigeration applications, and residential cooling coil units.

**Manufacturer:** Frigidaire Div., General Motors Corp., Dayton, Ohio.

**Features:** Condensers alone are offered in 2, 3, and 5-ton capacity for use in conjunction with self-contained air conditioning equipment or



commercial refrigeration products where it is desirable to provide air-cooled operation. Complete air-cooled condensing units also are available in some sizes. Designed for outside installation with steel weatherproof housing. Air flow cooling coils for both vertical (up-flow or down-flow) and horizontal air flow are available in 2, 3, and 5-ton capacities. These units are for use with conventional heating systems to provide year-round air conditioning when combined with new condensing units.

Circle No. 138 on Reader Service Card

### Ceiling Air Diffuser

**Product:** Residential ceiling air diffuser (KH-D) with built-in damper.



**Manufacturer:** Connor Engineering Corp., Danbury, Conn.

**Features:** Damper is positive-act-

ing piston-type and is manually operated by small knob. Unlike butterfly or louver dampers which often cause turbulence by disturbing air pattern, damper is said to vary air volume only at point of discharge. At any damper setting warm or cool air enters the room in horizontal pattern, assuring rapid mixing of supply and room air well above head level and without drafts or temperature variations. Built-in damper requires no added installation time on job. Diffuser particularly is suitable for bedrooms, kitchens, and other rooms where complete shut-off or adjustments for system-balancing is desirable.

Circle No. 139 on Reader Service Card

### Outdoor Thermostat Control

**Product:** Outdoor thermostat control that tips off indoor thermostat to changing weather conditions.

**Manufacturer:** General Electric Co., Schenectady, N. Y.



**Features:** Product expected to cost consumers about 75% less than existing automatic systems, manufacturer says. Control helps prevent indoor temperatures from dipping with sudden outside changes. System adjusts automatically, eliminating manual adjustment. Heart of outdoor thermostat is small wafer of unusual carbon compound that senses weather changes and then sends minute electrical signal via 25-volt circuit to indoor thermostat. Thus warned, indoor thermostat turns on furnace to cope with lower temperatures.

Circle No. 140 on Reader Service Card

### Ceiling Diffuser

**Product:** Line of ceiling diffusers and accessories.

**Manufacturer:** Titus Mfg. Co., Waterloo, Iowa.

**Features:** Any air pattern desired from directly downward to full horizontal—or any intermediate stages in between—can be quickly and easily achieved by hand-adjusting, small, center cone. Relative positions of three center cones need not be changed to obtain patterns. Curved contour design is exclusive. All models have four cones for uni-

# THIS COMPLETE LINE MEETS EVERY NEED FOR PUSH BUTTONS



## STANDARD DUTY



## HEAVY DUTY

**Write for Pushbutton Bulletins** which give complete details. Address  
Square D Company,  
4041 N. Richards Street,  
Milwaukee 12, Wisconsin.

Name your pushbutton requirement—there's a Square D unit to do the job, exactly. Three complete lines . . . standard duty, heavy duty, and oil-tight heavy duty . . . each providing a wide range of operators, stations, and circuit combinations.

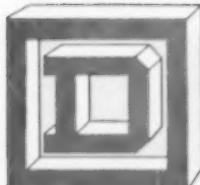


## OIL-TIGHT HEAVY DUTY

Available in 1 to 16 unit sizes. 6-9-12-16 unit stations have hinged covers for easier wiring

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

**SQUARE D COMPANY**



formity of design. For installation, center cone assembly, held in place by positive locking device, is removed so outside cone can be fastened to



duct collar. Slight twist snaps center cone assembly back into position.

Two models are available in all sizes: Model TMA (fully adjustable) and Model TM (fixed cone). Both models can be used for exposed ductwork or flush mounting applications. All diffusers come with accessories including Model CC ceiling cone and Model AG-55 Radial Volume control damper. Diffusers are available in metallocene-sprayed aluminum finish.

Circle No. 141 on Reader Service Card

**Manufacturer:** Fedders-Quigan Corp., Maspeth, N.Y.

**Features:** Operates on normal 115-volt line found in most homes and commercial establishments and draws no more than 12 amperes. Creates cooling comparable to currently available 1-hp, 208 or 230-volt units, without incurring considerable cost of bringing in high voltage from street or more remote source, manufacturer says. Also, operating cost is claimed to be 25% less.

Circle No. 142 on Reader Service Card

#### Room Air Conditioner

**Product:** 1-hp room air conditioner.

## Here's trucking AUTOMATION that lets you combat High Cost Hauling



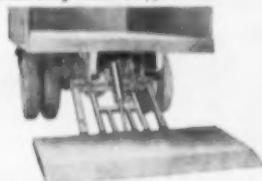
Cost saving way to handle heavy packaged goods such as barrels, cylinders, carboys, crates, etc. One man with a hand truck can handle any loading or unloading operation at big savings of time.

3

## ANTHONY LIFT GATES FOR 3/4 TON and Larger Trucks and Semi-Trailers



Model No. 144 handles loads up to 1000 lbs. Cuts loading and unloading time 50%.



Model No. 145 handles up to 2000 lbs. on 1 1/2-Ton and larger trucks and semi-trailers.

Model No. 146 handles up to 4000 lbs. on heavy trucks and semi-trailers.



**ANTHONY COMPANY**  
Streator, Illinois

Circle No. 83 on Reader Service Card

If high freight rates and costly delivery services are cutting a swath out of your profit picture, here are five ways you can offset them.

1. Speed up deliveries.
2. Develop faster, easier ways of loading and unloading trucks.
3. Systematize handling of bulky, awkward, heavy shipments.
4. Prevent damage to goods, yet make it easier and safer for drivers to handle most shipments alone.
5. Help drivers contribute to the satisfaction of the receiver.

All of these advantages are yours when you install Lift Gates on your trucks. We will be glad to recommend the systems, the size and type of Gate best suited for your work.

Write, wire or call us today—no obligation. One of our representatives is nearby. Dept. 5608.

**Manufacturer:** Fedders-Quigan Corp., Maspeth, N.Y.

**Features:** Operates on normal 115-volt line found in most homes and commercial establishments and draws no more than 12 amperes. Creates cooling comparable to currently available 1-hp, 208 or 230-volt units, without incurring considerable cost of bringing in high voltage from street or more remote source, manufacturer says. Also, operating cost is claimed to be 25% less.

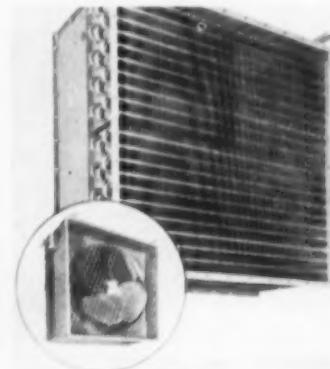
Circle No. 142 on Reader Service Card

#### Air-Cooled Condensers

**Product:** "Zephyron" 10-ton air-cooled condenser.

**Manufacturer:** Larkin Coils, Inc., Atlanta, Ga.

**Features:** Reversal of air flow in unit pulls air instead of pushing it through condenser. Model has motor and fan housing, eliminating need for hood on outdoor installa-



tions, fan guard, and external conduit box, which facilitates wiring. In addition to new model, condensers are available in 2, 3, 5, and 8-ton sizes. Provided with overload protection, new 10-ton unit has permanently lubricated motor which operates on resilient adjustable base. Weather-proofed with corrosion-resistant, open-base, chlorinated-rubber enamel, product's pre-punched holes for easy connection to duct work make inside installation simple. Slotted hanger bars also simplify installation either on floor or from ceiling.

Circle No. 143 on Reader Service Card

#### Conditioning Equipment

**Product:** Line of air conditioning equipment.

**Manufacturer:** Payne Div., Carrier Corp., Monrovia, Calif.

**Features:** Available in three sizes with refrigeration capacities of 25,800, 39,200, and 49,650 Btuh, models 30 RAC, 40 RAC, and 50 RAC respectively. Remote, air-cooled compressor saves both on installation and operating costs, manufacturer says. Each model available

with three types of coil: Vertical and horizontal air flow, and fan coil (BAC). Latter is designed for uses independent of existing forced air systems or where forced air systems are not utilized. Units have slide-out coil installation. Inverted



V-type cooling coil exposes more coil surface to circulated air. Each coil has compact casing that easily can be fitted right into ductwork with coil and compressor for system added later. Compressor is semi-hermetic, weather-proofed, and contains lubricated motor.

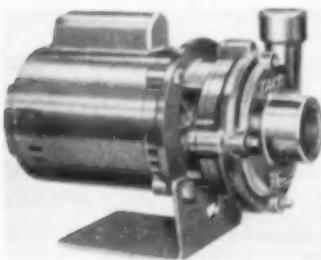
Circle No. 144 on Reader Service Card

#### Centrifugal Pumps

**Product:** New series of centrifugal pumps.

**Manufacturer:** Taco Heaters, Inc., Cranston, R. I.

**Features:** Series No. 170 pumps are of simplified design, to provide dependable cooling tower circulation in air conditioning systems with



minimum servicing requirements. Two sizes (1/3 and 1/2 hp models) are available at present, with larger sizes to be made available later. Standard motors are 3450 rpm, 60 cycle, single phase; three-phase motors available if desired. Mechanical seals used are self-adjusting, self-lubricating, easily replaced. Closed type, balanced impellers add to operating quietness and efficiency. Mounting flexibility provided by volatile design for choice of four discharge positions, and heavy stamped steel base which permits slightly out-of-line pump connections without causing noisy performance.

Circle No. 145 on Reader Service Card

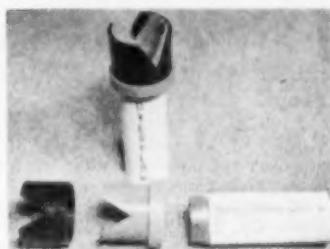
#### Bleed-Off Control

**Product:** "V-Notch Weir" device for easy adjustment and control of bleed-off in cooling towers and evaporative condensers.

**Manufacturer:** Deady Chemical Co., Kansas City, Kan.

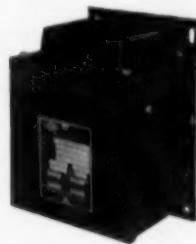
**Features:** Unit provides variable bleed-off for control of concentrations and also acts as skimmer for removal of suspended solids and surface trash such as dead algae and slime. Scale deposition and corrosion can be reduced and controlled by controlling the concentrations and using properly formulated chemical treatment. Easy to install and simple to use, device is mounted by cut-

ting and threading overflow pipe so that the assembled height, with the



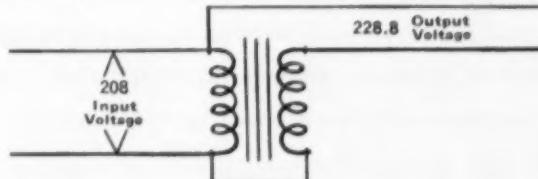
weir, will be same as original overflow pipe. Volume of bleed-off is

## THESE BUCK & BOOST TRANSFORMERS



## MAY HELP YOU SELL MORE AIR-CONDITIONING EQUIPMENT

Many air conditioning installations in older buildings have been postponed due to the cost of supplying adequate electrical facilities. Now, in most cases, this problem is solved with an Acme Electric Buck and Boost transformer. When connected to the existing low voltage electrical source, voltage can be boosted to exactly meet the requirements of the modern air conditioning equipment, often without any extensive rewiring.



The Boost and Buck transformer is essentially a 4 winding insulated type transformer with tap connections to permit interconnection of primary and secondary windings to boost or reduce voltage to meet the needs of the power requirements.

*For catalog giving detailed methods of application write for Bulletin BB199.*

**ACME ELECTRIC CORPORATION**  
828 WATER STREET

CUBA, N. Y.

**Acme** **Electric**  
TRANSFORMERS

Circle No. 84 on Reader Service Card

controlled by turning sleeve fitting, thereby adjusting depth of V-notch. Entire unit is machined Saran plastic.

Circle No. 146 on Reader Service Card

#### School Conditioner

**Product:** "HerNel-Cool" year-round air conditioner designed for schoolrooms throughout northern and central parts of the country.

**Manufacturer:** American Air Filter Co., Inc., Louisville, Ky.

**Features:** Unit operates more economically than conventional air conditioning systems because basic

design permits introduction of up to 100% of desired ventilation air from outdoors, manufacturer says. Pre-



cooling of classrooms is permitted naturally with night air, as well as

**WATER  
MUST BE  
KEPT  
OUT!**



If water penetrates the diver's suit, he is in a "bad spot". Tight equipment and painstaking care before putting the suit into use is a "must" . . . a preventive of disaster from water.

Similarly, an excellent method of preventing water troubles in new and reconditioned refrigeration systems is to inject a small amount of Thawzone, the moving dehydrator . . . ready to destroy moisture wherever it shows up in the system.

#### OTHER ADVANTAGES OF THE THAWZONE METHOD:

1. Actually destroys moisture . . . not a mere anti-freeze.
2. Scavenges oxygen . . . helps to overcome the harmful effect of traces of oxygen which may remain in a refrigeration system after the usual purging.
3. Cannot cause pressure drop.
4. Does not release moisture when temperature changes.
5. May be used in open or hermetic units containing any of the "Freons", methyl chloride, methylene chloride or isobutane.
6. Costs only about 8 cents per lb. of refrigerant treated. Used in minute amounts.

**Stewart Industries, Inc.**

(Formerly HIGHBIDE CHEMICALS CO.)

4 Colfax Avenue, Clifton, N. J.

Why don't you try a 1 oz. bottle of Thawzone?

Also available in 4 oz. and pint bottles.

Call your wholesaler.



Circle No. 85 on Reader Service Card

100

using outdoor air, without refrigeration, to offset heat caused by sun, electric lighting, and active children on temperate days. Design simplification and self-contained controls bring installation costs and all necessary piping and insulation to price closely competitive with conventional school ventilating systems, manufacturer says.

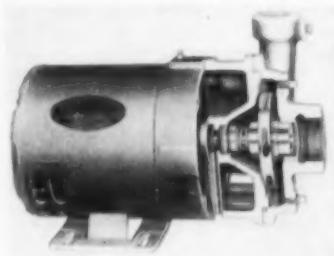
Circle No. 147 on Reader Service Card

#### Motor-Mounted Pump

**Product:** Compact motor-mounted centrifugal pump for air conditioning service.

**Manufacturer:** Deming Co., Salem, Ohio.

**Features:** Pumps range from 1/3 to 5 hp with capacities to 140 gpm, all bronze, enclosed type impeller;



renewable, bronze wearing ring, stainless steel shaft, and rotary type shaft seal. Casing may be turned for horizontal or vertical discharge. Suction and discharge nozzles are cast integral with casing and threaded for easy pipe connections. Drain, vent, and priming connections are provided. Motors are ball bearing, single or three-phase, 3450 rpm, equipped with grease lubricated bearings.

Circle No. 148 on Reader Service Card

#### Odor-Removing Adhesive

**Product:** Odor-removing adhesive ("Super Filter Coat") for washable filters.

**Manufacturer:** Research Products Corp., Madison, Wis.

**Features:** Packaged in metal container, product is complete with sprayer for re-coating filters after washing. Performs all dirt and dust-removing functions of its other adhesive, "Filter Coat," manufacturer says, plus actual removal of odors from air streams circulating through forced air furnace or air conditioner. Not simply a masking process, but a positive odor-removal from air, manufacturer claims.

Circle No. 149 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**



*Mr. Serviceman:*  
**DOES YOUR PRESENT CAULKING  
 COMPOUND GIVE YOU ALL THREE?**

**1. LOWER PRICE**

**2. EASIER APPLICATION**

**3. TOP PRODUCT QUALITY**

If Not . . . You Owe It To  
 Yourself To Start Using

**Mortite**

**CAULKING CORD or  
 CAULKING GUM NOW!**

**Here's Why...**

*Mortite Caulking Cord or Mortite Caulking Gum will perform your many caulking and sealing jobs faster, better than any other compound—and at much lower cost! Made specifically for and designed by refrigeration servicemen, these two MORTELL products come packaged in handy cylindrical containers to fit any tool box. Compact size eliminates waste.*

**These Facts Tell the Difference!**

**MORTITE CAULKING CORD**— $\frac{3}{16}$ " rope-like strands stay permanently soft. Non-staining, Mortite White in color, ready for immediate painting. Three compact, 8-strand 16-ft. rolls unwind one or more strands at a time without unwinding entire roll.

**MORTITE CAULKING GUM**—Easily hand-moulded into beads, wads, gaskets or any desired shape. One pound slug (2 $\frac{1}{2}$ " x 6") never hardens or cracks—adheres to any clean, dry surface through normal temperature ranges.

*Mortite Caulking Cord or Mortite Caulking Gum will do the job better than your present caulking compound at a fraction of your present cost. Write today for complete information about these two products and the complete line of Mortell refrigeration products.*

**MAIL COUPON FOR FULL INFORMATION**

**Mortell**  
 COMPANY

Makers of Famous NoDrip Tape and Mortite



A. W. MORTELL CO.,  
 363 Durah St., Kankakee, Ill. Dept. S.  
 O.K! Send me full information about the complete  
 line of Mortell refrigeration products.

Name: \_\_\_\_\_ Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Age: \_\_\_\_\_

"TAXP:YERS" . . .

Continued from page 87

ed above the compressor from its own base are the condenser and the water chiller. Measuring 16" by 10', this chiller is designed to cool 120 gallons of water per minute from 55 to 45 F, with a refrigerant evaporating temperature of 35 F.

This equipment, together with three water circulating pumps, is located in the basement adjacent

to the under-stage area which is used for scenery craft shops and dressing rooms.

The water chilling system is purposely not sized for peak air conditioning loads. These are met by augmenting the system's normal capacity through use of the chilled water storage tank, contents of which are cooled down by the refrigerating machinery during what would normally be idle periods.

With a storage capacity of 25,200 gallons of water, this "cold bank" can have the effect of sup-

plying 4 times again the capacity of the basic refrigerating system for nearly an hour's time, or two times again for almost two hours, and so on. The tank itself is of concrete construction, 32 x 15 x 9' in size. Filled to a 7' depth, it is buried underground next to the machinery room. The 12" thick sides are insulated with 1½" of cork to reduce heat entry, and the 8½" thick top is protected by an insulating fill and 5" of concrete pavement.

A 3-hp pump circulates water thru the shell-and-tube water chiller and back to the tank. Two other pumps, of 5 and 10 hp, draw from the tank and circulate chilled water to air-cooling coils located throughout the building.

Two fan-coil units, located under the stage, delivers a total of 20,000 cfm of conditioned air to the forward portion of the main auditorium. A 15,000 cfm unit, above the auditorium, supplies air to the rear portion. Other smaller units handle the needs of the foyer (4,000 cfm) and the stage itself (5,000 cfm). All units are of the hot-and-cold-deck type and draw in optimum amounts of outside air for ventilation.

Air is distributed from the ceiling of the auditorium thru 22 sup-

# SINCE 1910

## MOTOR CAPACITORS BY C-D



For nearly 45 years experts in motor service maintenance have relied on Cornell-Dubilier motor capacitors. The earliest practical and efficient AC electrolytic motor start capacitors were developed by C-D. Motor designers and equipment manufacturers long ago recognized the "Consistent Dependability" of C-D motor capacitors. No wonder there are more C-D capacitors in use today than any other make!

Always insist on C-D—there's a right type for every motor. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book. Dept. CR 65 Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.



CONSISTENTLY  
PENDABLE  
**CORNELL-DUBILIER CAPACITORS**

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE AND ROPE VALLEY, R. I.; INDIANAPOLIS, IND.; BANFORD AND PUGWAT SPRINGS, N. C.; SUBSIDIARY: THE RADIANT CORPORATION, CLEVELAND, O.

THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 87 on Reader Service Card

### YEAR-ROUND TWINS



**TWIN SYSTEM** of cooling and heating for year-round air conditioning, shown here, is a development by Iron Fireman Mfg. Co. In the wall just above the baseboard is a "SelectTemp" room heater unit, steam powered and equipped with steam operated circulating fan. Built into the outside wall high above floor level is an "In-the-Wall" room cooling unit for summer operation. Separate thermostats control the cooling and heating units, allowing individual room control in any season.

ply grilles of 1250 cfm capacity each, and 12 of 625 cfm each. Return air openings are located above the exit doors near the stage and along the rear wall.

System controls are of the pneumatic type, automatically operating control valves in the chilled water lines to the coil units as dictated by room thermostats, with duct stats in the supply fan discharge ducts establishing a minimum setting for these valves. Fresh and recirculated air dampers are under economizer control, so as to automatically take 100% outside air when the outside temperature falls below 70 F.

The machinery room exhaust fan and the 3-hp chilled water pump are tied into the refrigeration compressor controls for simultaneous operation.

Two Cleveland contractors, Gorman-Lavelle Plumbing & Heating Co. and Avery Engineering Co., collaborated in the design and installation of the air conditioning system.

#### CRYOGENIC ENGINEERS MEET SEPT. 5 IN COLO.

The 1956 Cryogenic Engineering Conference will be held Sept. 5, 6, and 7 in Boulder, Colo. The second meeting of its kind, will be devoted to engineering problems in the low-temperature range, below 150K (-190 F). The first conference was held at Boulder in September, 1954, as part of the dedication program of the Boulder Laboratories of the National Bureau of Standards.

Technical papers and discussions will deal with engineering research and development at very low temperatures. Topics to be covered are bubble chambers, instrumentation, properties of materials, insulation, and cryogenic equipment and processes.

Information regarding registration and reservations may be obtained from P. L. Barrick of the NBS Cryogenic Engineering Laboratory, Boulder, secretary of the conference committee.

BUY FROM YOUR  
REFRIGERATION WHOLESALER

#### WHIRLPOOL ADDS WING TO EVANSTVILLE PLANT

The Evansville Div. of Whirlpool-Seeger Corp., has started an expansion program in excess of \$19,000,000 with work on a 90,000-sq. ft. addition to the existing 962,000-sq. ft. Plant No. 2, acquired last year from International Harvester Co.

The program also includes more than \$8,000,000 for retooling of the 1957 refrigerator and freezer lines, according to John W. Krueger, vice president of W-S

and general manager of the Evansville Div. Approximately \$11,000,000 has been allocated for new construction, additional machinery and equipment, and rearrangement of production facilities between Plants No. 1 and 2. Production in Plant 2 is scheduled for fall.

When construction is completed, Plant No. 1 will be devoted exclusively to production of air conditioning units and components for refrigerators and freezers. Plant No. 2 will fabricate and assemble refrigerators and freezers.



- 1 All parts are at your finger tips when you remove one thumb screw.
- 2 You never need to remove the permanent refrigeration, power or water drain lines.
- 3 Machine bolts with lock nuts are used throughout construction...no sheet metal screws!
- 4 Extra large Facetized\* fin coil assures maximum heat transfer.
- 5 Pre-determined spacing and slotted hangers for easy, exact installations...fans can't be blocked in installation.

Tenney's exclusive easy-to-service design saves time and effort! Modern, semi-circular shape insures maximum all-over air distribution...compact sizes add to usable work area. Load right up to unit because pan can be removed from any direction...double drain trough pitched toward connection and insulated...controlled horizontal airflow eliminates uncomfortable direct drafts.

Twin motors and fans give double protection...a single motor will maintain safe temperature...attractive covers have rust proof baked-on finishes...filters are available for applications requiring clean air circulation...female pipe thread adapts drain connection to any line...units skillfully engineered for long, dependable service.

PATENTED

There's a Tenney TW unit cooler  
for every refrigeration job.

For complete information  
write for Bulletin 103-54 TODAY!

**Tenney**  
ENGINEERING, INC.

1000 SPRINGFIELD ROAD, UNION, N. J.  
Plants: Union, N. J. and Baltimore, Md.

Circle No. 88 on Reader Service Card

for which a separate exhaust system was furnished.

Temperature and humidity in the individual rooms is maintained by thermostats set in the room areas, and installed above 5 feet height, in accordance with the National Fire Protective Association requirements for hospital operating rooms. All ducts in the non-conditioned areas of the

hospital building were insulated.

Water supply for the air conditioning system is brought from a basement well water service through the hospital elevator shaft to the fifth floor. The supply is run through the overhead attic space on its way from the pre-conditioning coils to the condensing units. Condensate return water piping is installed along the outside wall of the doctors' room to the locker room, and attached to a 2" drain in the floor of the shower room.

After the original system was installed, additional work was done so that the air conditioning cans could be used to bring in fresh air during periods when the outside temperature was below zero. Heating coils originally air conditioning units, and it was necessary to run steam to these coils so that outside air could be tempered when outside temperatures were below freezing.

To accomplish this, it was necessary to bring in steam from the hospital's sterilizing room, with a regulator installed to maintain desired pressures. The piping then was extended through a motorized valve, controlled by a temperature control, to the heating coils on the fresh air side of the two air conditioning units. The steam piping is insulated. To bring

# Brand new idea ...in testing gauges

## It's the new "Serviceman" maximum pressure gauge . . .

Another example of Marsh coming up with an ingenious idea to make refrigeration servicing easier and better!

This time it's a new type of maximum pressure gauge — a gauge that shows top pressure with extreme accuracy, whether you make a short test or leave it over night.

The secret is a check valve that traps the pressure in the bourdon tube until you release it with that handy push button. Then the pointer jumps back to zero. It's so convenient and useful you'll wonder how you ever got along without it!

This Marsh innovation is incorporated in the highly accurate deluxe "Serviceman" testing gauge with 400 lb. scale . . . dressed up in a handsome, polished brass case with a knurled screwed ring which gives quick access to the Marsh "Recalibrator" to keep it always accurate.

Write for facts or see your wholesaler  
**MARSH INSTRUMENT CO.**

Sales affiliate of Jas. P. Marsh Corp.

Dept. P, Skokie, Ill.

Marsh Instrument & Valve Co. (Can.) Ltd.  
8407 103rd St., Edmonton, Alberta, Can.



GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

Circle No. 89 on Reader Service Card

FOR the benefit of air conditioning dealers and distributors who may be interested in promoting special air conditioning sections in their local newspapers, Air-Conditioning and Refrigeration Institute now has available a newspaper clip sheet containing a wide range of articles of varying lengths suitable for this purpose. Detailed information on this program may be obtained directly from ARI headquarters, 1346 Connecticut Ave., N.W., Washington 6, D.C.

in fresh air from the outside for winter operation, it also was necessary to insulate the fresh air ducts from the roof to the heating coil on each unit.

One air conditioning unit serves the eye operating room through two 200 cfm diffusers, a minor operating room through two 250 cfm diffuser units, and an adjoining larger operating room through two 400 cfm diffusers.

The second unit serves the hospital's fourth operating room through two 500 cfm diffusers, the supplies and sterilizing room through six 100 cfm diffuser units, and the wash-up room through two 200 cfm diffusers. As mentioned earlier, the existing exhaust system has been maintained in all of the rooms except the eye operating room, where a separate exhaust system has been installed.

## CENTRAL COOLING . . .

Continued from page 88

question of whether the air-moving capacity of the fans in the air conditioners was great enough to allow the air flow to run the 60 feet necessary to cool each room, despite the static pressure that existed.

To overcome this possible difficulty, a booster fan was installed at the Y-joint of the duct work. To date, however, it has not been necessary to use this fan, but it is available in case of an unexpected surge of hot weather.

One other problem in connection with the installation was that of space—how to accommodate, even temporarily, the service man, his tools, and the ducts themselves in the cramped area of the false ceiling where the ducts were drawn from the workshop to the offices and the reception room.

The installer overcame this difficulty by crawling on his stomach in the narrow confines and by

using just one hand to connect the ducts and insulate the unit. The duct that goes through the false ceiling is fully protected with 1" glass fiber insulation.

### HEAT PUMP HERO



**PIONEER** plaque for his efforts in behalf of the heat pump is presented to Roy W. Johnson (left) by H. M. Brundage (right), general manager of General Electric's Weathertron Dept., as R. H. Jones, general manager of the G-E Air Conditioning Div., looks on. G-E recently honored 785 engineering, marketing, manufacturing, and distributor and dealer personnel for their pioneering efforts in establishing the heat pump industry.

Circle No. 63 on Reader Service Card

## LIQUID EYE POSITIVE SEALING INDICATORS



Illustrated: 200 Series, 1/2" or 5/8" female by male flare.

- Pyrex glass, double pressure sealed at sides and ends.
- Provides instant visible check of refrigerant condition.
- Unrestricted full line flow.
- Spring-loaded gaskets insure positive seal against leakage.
- Guaranteed to 500 psi.
- Precision made.

Sold by leading wholesalers everywhere. Write today for Catalog D-55 covering the complete Allin line.

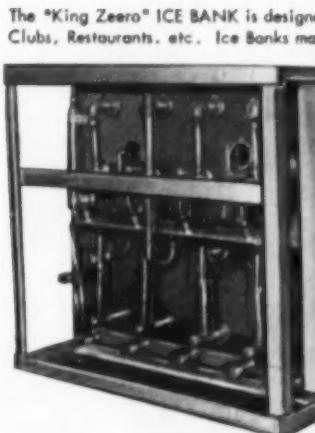
**ALLIN MANUFACTURING CO.**  
410 N. Hermitage Ave.  
Chicago 22, Ill.  
Over 1,000,000 Liquid Eyes Sold to Date!

## "King Zeero's" Sweet Water **ICE BANKS** offer ICE - CONCENTRATED Refrigeration for Air Conditioning

### CONTINUOUS RIFLED GALVANIZED COILS EXPANSION VALVE CONTROLLED

**32° - 34° COLD  
ICE WATER**

DESIGNED FOR USE WITH:  
FREON — METHYL CHLORIDE — AMMONIA



MODEL A-7  
"KING ZEERO"  
ICE BANK

CAPACITIES - 500 lbs. to 30,000 lbs. (72,000 B.T.U.'s to 4,320,000 B.T.U.'s) in a single unit. Multiple units may be installed.

## THE KING ZEERO COMPANY

4300-14 W. Montrose Ave., Chicago 41, Ill.



The "King Zeero" ICE BANK is designed to deliver tons of 32 to 34 F. ice water for recirculation through air cooling coils. Peak loads many times compressor capacity are easily handled.

- DIRECTED COURSE OF WATER travels with "built-in" agitation.
- NO MECHANICAL AGITATION REQUIRED.
- LARGE WATER COMPARTMENTS spaced on 11" and 12" centers.
- 33% EXTRA ICE CAPACITY safely attained without freezing up.
- ICE IS "BURNED OFF" PLATE COILS progressively, exposing prime and secondary surface for maximum flash cooling capacity.
- ICE THICKNESS automatically controlled - eliminates "freeze ups."
- 94 SIZES to fit space requirements. Other designs for special applications. **MAIL COUPON TODAY**

King Zeero Co., 4302 W. Montrose Ave., Chicago 41, Ill.

Please send me your new ICE BANK Catalog.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



**EIGHTY-ONE FEET** of sales leads received by Drayer-Hanson, Inc. from its advertising and publicity program was unfurled at the company's recent three-day sales meeting in Los Angeles. Sales manager Fred E. Schmuck (second from left) calls attention of executive Al Hanson to the range and variety of the sales leads, which are "backed up" here by Drayer-Hanson factory representatives from the various states.

#### DEPARTMENT STORE USES 14 PACKAGED UNITS

Modernization of Mostellers department store, West Chester, Pa., will include the addition of a complete new air conditioning system. With installation already in progress, the store is being equipped with 14 large Airtemp packaged air conditioners which will furnish the three-floor building with 123 tons of cooling.

So as not to interfere with department store business hours or with downtown traffic, all the air conditioners were unloaded on a Sunday and set in place on the same day. This fast work, made possible through the use of "packaged" units, will permit installation to be completed in record time. Murray Electric Co., Paoli, Pa., is the installing dealer. S. S. Fretz, Jr., Inc., Philadelphia Airtemp distributor, handled all engineering and layout.

"Our field surveys indicate that a great deal of similar air conditioning modernization will be initiated this year", comments Sydney Anderson, Jr., Airtemp commercial and industrial air conditioning sales manager. "1956 could be a record year as the air conditioning of existing or older buildings is concerned. Hotels, department stores, manufacturing and retail concerns all seem to be evidencing more interest in air conditioning than in past years."

#### AMERICAN POTASH REPS MEET AT FACTORY

Area representatives from all parts of the United States for American Potash & Chemical Corp.'s refrigeration products met recently at Los Angeles for a four-day series of conferences and tours of plant facilities as an aid to their handling of the company's refrigerant chemicals.

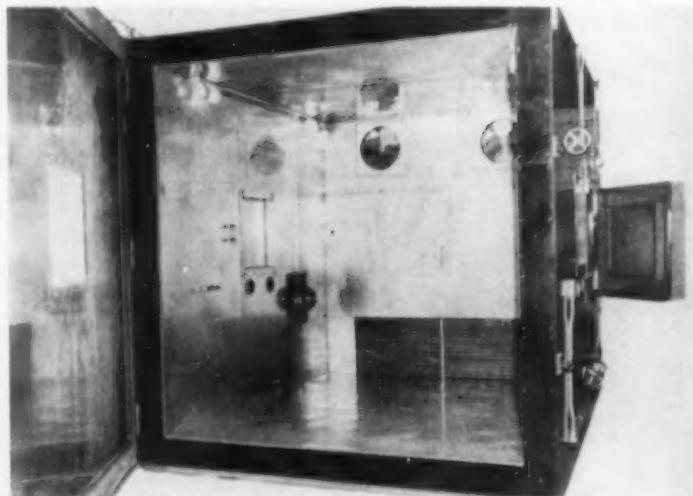
Under the guidance of George Schnier, sales manager of the re-

frigeration department, and Bernard F. Nelson, California area sales representative for the department, the group visited company headquarters at Los Angeles, toured the main plant at Trona, Calif., and learned about the corporation's research program at Whittier, Calif., research laboratory.

Those who attended the conference included Thomas H. Hart, J. F. Burnett, and D. J. Dodds Jr., all of Hart Engineering & Sales Co., in the southeast area; Leo J. Freitas, F. F. Kennedy, and W. D. McDaniel, all of Leo J. Freitas Co., Inc., southwest territory; C. C. Penn and O. C. Yates, Northwest Factors, northwest area; J. N. Marshall, J. N. Marshall Co.; R. B. Grisbrook, of St. Louis, Mo.; Allen B. Harvey, New York; O. J. Kesti, Detroit; and George W. Wilson, Chicago.

#### RECOLD APPOINTS EVANS HOUSTON DISTRIBUTOR

F. J. Evans Engineering Co. has been named exclusive distributor in the Houston trade area for all air conditioning products of Refrigeration Engineering, Inc. D. M. Mills is manager of the Houston Div. of the Evans company which has main offices in Birmingham, Ala. Houston branch is located at 2103 Crawford St.



**HINGED ACCESS DOOR** shown at right allows interior instrument changes and adjustments of equipment under test in this environmental chamber without causing the sharp temperature changes which would result if the major chamber door were opened. This feature was developed by Tenney engineers in the construction of an ultra low temperature test chamber for a leading aircraft manufacturer. The 20' x 20' door is located beside the window in one 8' x 10' side. Complete chamber is 8' wide x 8' high x 10' deep. Temperature range is minus 100 to plus 220 F, relative humidity range from 20% to 95%.

## LETTERS . . .

Continued from page 35

cle and mail them to our distributors and personnel to indicate what can be done with heat pumps.

L. K. CARLBON  
Supervisor of Publicity  
General Electric Co.  
Bloomfield, N. J.

Permission gladly granted.

\* \* \*

### Heat Pump Article Spurs Desire for More Data

EDITOR:

On page 110 of your June issue you published an article describing an installation of a 7½-hp heat pump for year-round air conditioning of a Long Island, N. Y., residence. I wonder if it would be possible for you to provide me with more information on this system?

K. A. VAUGHAN  
Gates Rubber Co.  
Denver, Colo.

*We have forwarded your request to officials of American Coils Co., manufacturer of the equipment involved in this installation. We are sure they will be pleased to send you any additional information they may have available.*

\* \* \*

### Marketing Handbook Still in Demand

EDITOR:

We would like to obtain the "Commercial Refrigeration Handbook" which we understand you publish.

SAMUEL BRONSTEIN  
Century Glove Corp.  
Newark, N. J.

*The COMMERCIAL REFRIGERATION & AIR CONDITIONING MARKETING HANDBOOK was originally published by us in 1950, and copies of this book have long since been exhausted.*

*We do have available at present, however, the REFRIGERATION & AIR CONDITIONING CATALOG OF CATALOGS which contains a great deal of technical information regarding applications of refrigeration and air conditioning equipment. It also contains a complete listing of manufacturers of all types of equipment used in this field.*

## End PIPE CONDENSATION PROBLEMS Forever



the only  
1/4-inch tape  
with 3 separate  
insulating barriers



### 1. OUTSIDE

Rough strands "hold" and cool surrounding air—prevent exterior condensation

### 2. 1/4-INCH THICKNESS

Air-tight, self-sealing—for utmost insulating efficiency

### 3. INSIDE

Dead air is trapped between "corrugated" strands, forms added insulation barrier

Only NoDrip Tape offers you *triple insulation*—stops condensation drip forever—makes waste space completely useable—gives you easiest, labor-saving installation.

NoDrip Tape is a pliable, cork-filled 8-strand covering... *self-adhering*, becomes a sealed pipe jacket the instant it's pressed in place. 100% vapor and moisture proof.

Requires no vapor-seal tapes or over-wraps. No fasteners, tools, brads or adhesives. Winds spirally around any tubing or pipe—around joints, tees, valves or angles. No experience needed... anyone can apply NoDrip Tape.

SOLD THROUGH  
LEADING WHOLESALERS

### FREE! Bulletin D-40

J. W. Morell Company  
553 Birch St., Kankakee, Ill., Dept. 8  
Please send me FREE copy of  
Bulletin D-40

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Circle No. 34 on Reader Service Card

# Here's How

## PROFITABLE SERVICE AND INSTALLATION PRACTICES

### Check Pulleys, Too When Replacing V-Belts

WHEN multiple V-belts are replaced because of wear, belt engineers advise that several points should be observed to obtain good service from the replacement belts.

Not infrequently, when the belts have served their expected life, the sheaves or pulleys will be from one-half to fully worn out, also. All too often, the new replacement belts are installed on badly and unevenly worn pulleys which will drastically reduce the life expectancy of the replacement belts.

The best practice is to replace the pulleys when the belts are replaced. In any case, the pulleys should be examined for roughness in the grooves which will cause excessive wear.

The grooves should be checked for uneven wear. The belts may be matched but not the grooves. To check for uneven groove wear, move the matched belts from groove to groove and test for difference in play. If uneven tension is observed, the pulleys should be replaced.

The replacement belts should be of the same type and construction as the original, and if possible should be approximately the same age and condition.

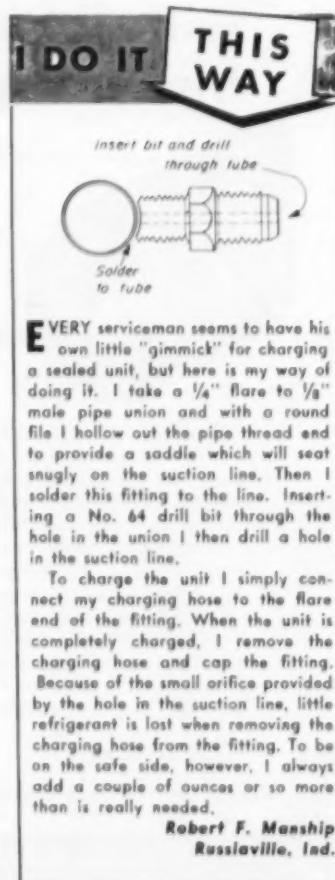
### You Don't Need To Wait For the Phone to Ring!

This may come as a surprise to some service men, but you can build up and maintain a steady volume of service business without waiting for the telephone to ring!

If the customer doesn't call you as often as you feel he should, there's nothing to stop you from calling the customer. Explain that in checking over your records you find that you installed his equipment some time ago, then ask if everything is satisfactory. Suggest that this might be a good time to

give the equipment a routine check, and assure him that you would be glad to look at it anytime that is convenient.

Whether or not such an inspection reveals that any service is required, the customer is sure to appreciate your courtesy and will remember you when trouble does develop. —



### Moisture and Gas Leaks Still Plague Serviceman

Moisture in the refrigeration system and the presence of gas leaks through which the refrigerant escapes are still the two greatest "bugaboos" of refrigeration

servicemen. These two factors combine to cause more service calls than anything else, because both of them are not only direct causes of trouble, but also are indirect causes of secondary troubles.

For example, a system that has lost refrigerant from a leak, and is therefore low on charge, does not refrigerate efficiently and thus requires a service call to find the leak, repair it and restore the refrigerant that was lost. The leak is therefore the direct cause of that service call.

While the system was low on refrigerant it probably did not return oil properly, so the compression was somewhat damaged from mal-lubrication due to low oil level. The bearings and seal were scored, although perhaps not enough to cause immediate trouble.

Later, even after the leak is fixed and refrigerant added, the seal may start to leak due to the scoring that was caused during the time the system was low on charge and oil return was not right. Thus the leak was the indirect cause of a seal leak later.

The same thing happens with moisture, to a greater extent. Moisture in the system may cause the expansion valve to freeze up and stop refrigeration. Even after the direct cause of the trouble has been corrected by putting on a dehydrator and removing the moisture, the indirect troubles may appear, such as corrosion of discharge or suction valves, seal faces, and expansion valve needles from acids caused by the action of the moisture and air on the refrigerant.

Sludges or waxes may have formed that later stop up oil passages and otherwise retard good lubrication or foul up expansion valves, discharge and suction valves, seals, solenoids or other internal parts.

An able and experienced service engineer will avoid leaks or the entrance of moisture into the system. He has found out from bitter experience that the extra work and extra care when installing the equipment pays good dividends in reducing later trouble.

BUY FROM YOUR  
REFRIGERATION WHOLESALER

Circle No. 92 on Reader Service Card

An average of 19 Ranco installations every minute—ten million a year—offers ample evidence of the overwhelming preference for Ranco Controls among refrigeration, air conditioning and appliance servicemen.

The excellent performance of quality Ranco Controls in use is legend among servicemen who prize their reputations for fine service.

The Ranco line of replacement controls is more complete than that of other manufacturers and assures that your Ranco Wholesaler can supply you with the *right control* for most service jobs.

And Ranco's prompt factory service makes special applications almost routine. Your Ranco Wholesaler will be happy to order "specials" direct from the factory.

Small wonder Ranco has such an impressive record of popularity. Wouldn't it be wise to simplify your service work with quality Ranco Controls, too? Next service job, visit your Ranco Wholesaler.

#### Which control to use?

Ranco Replacement Reference (No. 1544) shows you . . . lists nearly 5,000 different applications. Buy yours from your Ranco Wholesaler. (Not available from the factory.)



## 19 NEW RANCO CONTROLS

installed every minute



WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

COLUMBUS 1, OHIO

Ranco High-Pressure Cut-In  
Controls—010-1807, 010-1894

- Applicable to air conditioning systems, water tower condensing units, gas engine driven compressors.
- Operates with  $\text{SO}_2$ ,  $\text{CH}_2\text{Cl}$ , F-12, F-22 refrigerants.
- 100 to 250 lbs. or to 350 lbs. cut-in range.
- 30 to 100 lbs. adjustable differential.
- 0 lbs. lowest cut-out.

**POWERS**

# Service-Master

THE ALL-PURPOSE SERVICE BODY

**ACCLAIMED BEST**

BY AIR CONDITIONING AND REFRIGERATION CONTRACTORS

Sales records prove that Service-Master is used by more service men than any other body. Service-Master makes work easier . . . saves more time . . . builds greater profits!

### EXTRA FEATURES!

"Freeze-free" hinges that can't bind • Concealed fenders to protect compartment walls • "Hi-Let" floor for easier loading • "No-Bounce" bins to keep parts in place • "Puddle-Proof" cargo area...and many other "extras".

**OUTLASTS SEVERAL CHASSIS**  
Carried in stock in all 48 states by LOCAL Distributors!

**FIND OUT FOR YOURSELF** Prove to yourself that Service-Master gives you more for your money. Mail this coupon for complete details and price information today.

### McCABE-POWERS AUTO BODY CO.

5900 N. BROADWAY • ST. LOUIS 15, MO.  
675 CEDAR ST. • BERKELEY 10, CALIF.

Please send me complete details on  
**SERVICE-MASTER**

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City & State \_\_\_\_\_

DJ

Circle No. 93 on Reader Service Card

110

### LARGEST AIR CONDITIONED RESIDENTIAL DEVELOPMENT?



HOMES in the Barton Hills development, Austin, Tex., (above) will be equipped with 3-ton Typhoon "Weather-Selector" year-around air conditioning systems. (Right) Condensing units are located outdoors. This one is beneath the bedroom windows.

### TYPOON TO CONDITION 1,152 AUSTIN HOMES

All of the 1,152 homes in the huge new Barton Hills development in Austin, Tex., said to be the largest such residential development yet attempted, will be equipped with "Weather-Selector" air conditioning units manufactured by Typhoon Air Conditioning Co., Div. of Hupp Corp.

Designed especially for use in basement-less homes with forced warm air heating, the Weather-Selector units fit into a standard home closet. Cooling coil slides into the housing provided at the top of the furnace. Condensing unit is located outside of the house.

Furnace-cooling coil combination fits into a closet 41½" deep and 33" wide. To forestall installation problems, Typhoon is providing complete specifications for the furnace closet so it can be built in advance of the arrival of equipment. The closet blueprint was developed by Arthur Farr, Typhoon's director of application engineering.

Cost of air conditioning varies with the house, insulation, expo-

### RECTORSEAL No. 2

highest quality sealant  
lowest cost  
finest package



What a combination to beat. Nothing has been spared to make Rectorseal No. 2 the finest compound available for preventing leaks on refrigeration installations. Yet the price is from 20% to 40% lower.

The handy tube has a nozzle tip applicator for easy, clean application. Each tube individually packed in a sturdy cylindrical screw top fiberboard carton.

Thin in the tube, Rectorseal No. 2 spreads smoothly without waste. It thickens to a plastic elasticity in the joint to positively seal against leaks. Insoluble in all refrigerants (gas or liquid) and in oil and water.

Write today for generous free sample of Rectorseal No. 2.

#### RECTORSEAL Dept. Y

2213 Commerce Street, Houston 2, Texas

**RECTORSEAL**  
NUMBER TWO

Circle No. 94 on Reader Service Card

AUGUST, 1956 • COMMERCIAL REFRIGERATION

sure to elements, etc. In the Barton Hills development, which uses 3-ton units, air conditioning will cost between 80 cents and \$1 a square foot.

#### SALES CONTEST WINNERS ANNOUNCED BY AIRTEMP

George Webster, Wilson Supply Co., Inc., Washington, D. C.; Wayne Wicklund, V. M. McGranahan, Inc., Dayton; and Gordon Campbell, McGranahan Distributing Co., Toledo, all sales managers, have been named major prize winners in the recently completed room air conditioner sales contest sponsored by Airtemp Div., Chrysler Corp. Each will receive a fully-equipped Chrysler automobile.

Titled "Operation Chain Reaction," the contest opened in February and ended in May. It included two divisions, one section for distributor sales managers and one for distributor retail salesmen. Thirty of the latter (listed below) won expense-paid trips for two to Bermuda.

George Furry, Richard Watson, Donald Harpster, Newell Young, and Wayne Collins, all of Toledo; L. B. Mangione, and Robert Jacobson, Chicago; Henry Goldfine and Joseph Tinderstruth, Washington, D.C.; Frank Hager, Thomas Pikes, and William Koehler, Cleveland.

Joe W. Vaughn, Birmingham, Ala.; G. G. McCalister and P. J. Kanistro, Dayton; James F. Sanders, Houston; William Skelton, Cincinnati; Robert Farrar, Roanoke, Va.; William Moore, South Bend, Ind.; Elmer Stone, Green Bay, Wis.; Robert Adams, Huntington, W. Va.; Joe Schweiger, Denver; Ralph Dusenberry, Yuma, Ariz.

Jake Knox, Norfolk, Va.; William Hoffmann Buffalo; E. Stanley Osborne Culver City, Calif.; Palmer McMahan, Mattoon, Ill.; J. T. Coleman, Los Angeles; Wally Camp, Clarksdale, Miss.; and Floyd Shapiro, Newburgh, N. Y.

#### M & V TAKES ON RECOLD

M & V Supply Co. has been appointed exclusive distributor in the Oklahoma area for Refrigeration Engineering, Inc., under the Recold brand name. A. R. Morin and M. W. Voss are co-owners of M & V with offices in Oklahoma City.

## DETECT LEAKS

\*  
SOLDER  
\*  
HEAT



### PREST-O-LITE

Trade-Mark

#### REFRIGERATION AND AIR CONDITIONING OUTFIT

This air-acetylene outfit easily handles all your soldering, heating, and leak detecting work. No liquid fuel to spill. No pumping, priming, or wasted time. The three open flame stems and halide gas leak detector unit are instantly interchangeable on a common handle. One handy kit with a flame for every job. See your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.



1 TO 500 H.P.

Open Drip Proof, Totally Enclosed Fan Cooled, Totally Enclosed Non-Ventilated, Splash Proof, NEMA "C" Range and "D" Range, Extended Shaft Pump Motors, Single and Polyphase Motors.

#### FAST DELIVERY OF ALL POPULAR MODELS:

Brook Motors are available from warehouses at Chicago; Dallas, Tex.; Jersey City, N. J.; Los Angeles; Memphis, Tenn.; Salt Lake City; San Francisco; Savannah, Ga.; Seattle; Tampa, Fla.; and other major distributing points.



SINCE 1904

**BROOK MOTOR CORPORATION**  
3553 W. PETERSON AVE., CHICAGO 45, ILL.

Circle No. 96 on Reader Service Card

& AIR CONDITIONING • AUGUST, 1956



Fully adjustable gas pressure regulator insures perfect flame control. Torch handle has shutoff valve and built-in pilot flame control for convenience and economy.

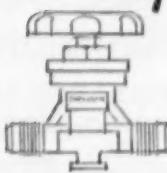
Get it from your LINDE jobber

\*

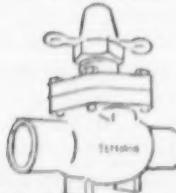
The terms "Prest-O-Lite" and "Linde" are trademarks of Union Carbide and Carbon Corporation.  
Circle No. 95 on Reader Service Card



calling your  
jobber  
today?



if it's Line or



Globe valves  
take it easy on  
yourself... ask for  
these "Trouble free"  
valves by



**Superior**  
valve & fittings co.  
pittsburgh 26, pa.

Circle No. 97 on Reader Service Card  
112

**ROOM COOLERS . . .**  
*Continued from page 91*

cleaning and reinstallation in the spring will be welcomed by institutional managers with space problems and limited maintenance personnel.

Experience with a large number of window type conditioners indicates that the major maintenance problem is scheduled changing of filters. In one installation, coils began freezing up about a month after initial installation. In every case, the filter was filled with dirt. After defrosting and replacing the filter, operation was normal.

Defrosting of these units required several hours, as ice had built out until it was chipped by the evaporator fan. This was irritating to a guest who had checked in for a few hours and was planning a business conference. Such operational failures have been eliminated by scheduled filter replacement. Filters are inexpensive and cost is more than offset by reduced cleaning costs in the rooms.

There have been no complaints due to noise except in three instances, where installers failed to properly remove or loosen shipping bolts or where the compressor had been tipped off the mounting springs. This was gratifying to the operators, who had been concerned lest noise would be an objectionable feature of room conditioners. The noise level in conditioned rooms is noticeably less than where windows are used for ventilation.

The main consideration favoring installation of room air conditioners in guest rooms of hotels and similar institutional rooms is that of first cost. A good installation, including wiring, can be ob-

**THIS UNIT SELLS ITSELF**



**SALES TALK** is built-in to this top-of-unit display developed by Mitchell Mfg. Co. for its room air conditioner dealers. The display demonstrates the workings of a room air conditioner and points out the functions of each component part.



**THIS SEMI-AUTOMATIC  
HERMETIC  
COMPRESSOR  
OPENER  
makes repairs  
PROFITABLE**

*no training or  
experience required  
write today for FACTS*

**FRANKELL MFG. CO.**  
1074 HOME ST. • NEW YORK 59, N. Y.

Circle No. 98 on Reader Service Card

tained for about \$300 per room, compared to about \$600 for central equipment.

Central station installation is difficult in most older buildings due to lack of space for ducts or piping. Modern raceways make extensive wiring possible with minimum damage to decorated surfaces.

No water is required. It is, of course, possible to operate central equipment with air cooled condensers but this involves additional cost and space problems.

Room conditioners serve only one zone, hence equipment is operated only when necessary for that particular location. It is ready-

ly portable, which is important when remodeling is planned.

It is true that all factors do not favor room conditioners over central equipment, even in older buildings. Where steam or water piping is in need of replacement, or may be in the near future, it is usually advisable to provide for circulation of heated or chilled water, as necessary, for heating or cooling.

Exterior appearance and diminished natural lighting inside are major objections to room conditioners. The appearance problem is being met by design of thinner units which do not extend beyond walls or into rooms.

Well designed central equipment will operate with better efficiency, a noise level almost zero in the conditioned space and, when equipment is properly concealed, will not be noticeable except for conditions maintained. Air distribution is also better controlled.

BUY FROM YOUR  
REFRIGERATION WHOLESALER

**CURTAIN OF AIR . . .**  
*Continued from page 87*

"wall of air" blower are wired into the same switch so that it is impossible for either to run without the other.

To provide the benefit of cooling in the heavily-used cleaning room it was decided to place a single water spray evaporative cooling unit on the input blower. This functions efficiently, inasmuch as the washed and cooled air is present in the room only for a matter of seconds before being whirled away through the exhaust system.

Through dampering and careful adjustments of blower rpm, it was found possible to produce an atmospheric pressure in the office machines cleaning room which is precisely equal to that in the remainder of the first floor. Consequently, even when both blowers are going full blast, none of the conditioned air from the remainder of the first floor is lost through the cleaning room exhaust system.

DRY-BEVERAGE COOLERS MILK DISPENSERS

**REFRIGERATOR-FREEZER COMBINATIONS**

MEET THE BUYER DEMAND

**A BIG FREEZER VALUE**  
UNITED'S DUAL PURPOSE UPRIGHT

**SAFELY  
SHARP  
FREEZES**



Model UF 32  
32 cu. ft.  
Freezer Storage

**SAFELY  
STORES  
OVER  
1,000 lbs.**

UPRIGHT FREEZERS

BEER DISPENSERS

This big freezer value provides ideal backroom storage wherever food is served or frozen food sold. Meeting the most rigid commercial demands, it means an extra measure of safety for food . . . extra savings in economy of operation.

Write for full information

DESIGNED, ENGINEERED AND MANUFACTURED BY

**United** REFRIGERATOR  
COMPANY  
HUDSON, WISCONSIN

WRITE, WIRE OR PHONE TODAY

Circle No. 99 on Reader Service Card

& AIR CONDITIONING • AUGUST, 1956

if  
you  
need  
**valves**

or  
**driers**  
**sight glasses**  
**heat exchangers**

or  
**fittings**  
**of any kind**

ask  
your  
jobber  
for the best  
... ask for

**sf**

**Superior**  
valve & fittings co.  
pittsburgh 26, pa.

Circle No. 100 on Reader Service Card

## NEVER TOO OLD TO LEARN!



**COOL SCHOOLING** for gas utility company sales engineers, the first of several training sessions to be held this year, is being conducted here by Victor Cole, product specialist for the new automatic "pushbutton" absorption refrigerating machine manufactured by Carrier. Purpose of the course is to equip gas industry men with necessary techniques for selling and selecting the proper machine for applications where gas is the principal energy source.



**FIRST SCHOOL** for its midwest air conditioning dealers was held recently by Shana Mfg., Inc., Chicago. More than 100 dealers and distributors from six states attended this, first in a series of one-day training sessions scheduled by the company. Illustrated lectures (as pictured) described proper installation, servicing and maintenance.



**LEARNING BY DOING.** Demonstrations by instructors and problem-solving sessions in which dealer-trainees are "on their own" are important parts of the training program of the Coleman Heating and Air Conditioning Institute, now in its tenth year. The group above is learning how to run chilled water lines from a remote condensing unit to a plenum coil. The program is in charge of W. A. Hattan, Coleman training director.

### BOTTLERS TO MEET IN CLEVELAND NOV. 12

Cleveland, Ohio will be host to the nation's refrigeration equipment manufacturers when they meet to display their products at the 1956 International Soft Drink Industry Exposition, Nov. 12-15. Sponsors will be the American Bottlers of Carbonated Beverages, national trade association of the bottling industry, in conjunction with its 38th annual convention.

Latest beverage cooler designs and modern water cooling equipment will share the spotlight. Twenty manufacturers of refrigeration equipment were among the 189 suppliers signed up for exhibit space as of June 1.

Refrigeration manufacturers who already have made arrangements to exhibit at this show are:

APCO, Inc., New York, N. Y.; Atlas Metal Works, Dallas; Bevco Co., St. Louis; Bottlers Appliances, Inc., Salisbury, N. C.; Brewer Titchener Corp., New Milford, Pa.; Choice Vend Div., Central Tool Co., Hartford.

Champion Vender Co., Niles, Mich.; Crown Cork and Seal Co., Baltimore; General Vending Machine Corp., Philadelphia; Glascow Bros. Mfg. Co., Muncie, Ind.; Hedeman Products, Inc., Green Neck, N. Y.; Ideal Dispenser Co., Bloomington, Ill.; Kelvinator Div. of American Motors Co., Detroit; Kol Flo Kooler Co., Bayonne, N. J.

LaCrosse Cooler Co., LaCrosse, Wis.; Mojonier Bros. Co., Chicago; Potter & Rayfield, Inc., Atlanta; S & S Products Mfg. Co., Lima, Ohio; True Mfg. Co., Inc., St. Louis; and Vendorlator Mfg. Co., Fresno, Calif.

### TENNEY OFFERS NEW CONSULTING SERVICE

Tenney Engineering, Inc., has established a separate engineering section\* (ES-10) that offers consultation service on the design of new environmental test chambers and the modification of existing equipment.

Robert H. Brown, Tenney vice president, has been named head of this new section.

Prime function of this section is to offer complete consulting service from the design stage on through to the manufacture of new environmental test rooms or components for existing applications. Another function of this service will consist of devising new applications and uses for existing chambers.

## OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$6.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

### POSITIONS AVAILABLE

**CHIEF REFRIGERATION ENGINEER**  
Unusual opportunity for a well grounded man who wants and can take responsibilities. SALARY OPEN — Location New York City — Our organization knows of this ad. Write in confidence to Box 1000, Realservice Advtg. Agency, 110 West 34 St., N. Y. C.

### EQUIPMENT FOR SALE

**AMMONIA COMPRESSORS, FREEZERS, EQUIPMENT:** 2- York mod. E.O. — 11½" x 10" dbl. ammonia compressors, each with 1- 175 HP sync. motor, 440 V., 185½ amps., 100% P.F., 3 phase, 60 cycle, 360 RPM with controls. 1- York mod. D8- 13" x 9" dbl. booster ammonia compressor, with 50 HP sync. motor 440 V., 55.4 amps., 100% P.F., 3 phase, 60 cycles, 360 RPM with controls. 1- York mod. D8- 15" x 10", 4 cylinder booster ammonia compressor with 125 HP, sync. motor, 440 V., 134 amps., 100% P.F., 3 phase, 60 cycles, 360 RPM with controls. 1- Worthington 10" x 10"—21.9 ton capacity ammonia compressor with 40 HP, 1750 RPM motor. 8. Water defrost type BLAST FREEZERS. 14-Tagliabue RECORDING THERMOMETERS. 19-AMMONIA FREEZING SHELF UNITS, range from 7'-8" long x 50" wide to 14'-10" long x 50" wide. All are 7 and 8 shelves high. Also: All ammonia receivers, pumps, regulators, and related items. **COMPLETE ICE MAKING PLANT:** 1. 16" x 29" ice crushing hog. 1- 1½ ton Shaw Box load lift with motorized trolley & elec. hoist. Also: Brine tanks, Galv. ice cans, Rote-Lift, etc. **ZIDELL** Machinery & Supply Co. 3121 S.W. Moody St., Portland 1, Oregon. Phone: CA 8-8691. CABLE: ZIDELL.

### AIRTEMP TO CONDITION FOOD FAIR STORES

The Philadelphia office of Food Fair Stores, Inc., has announced that the company has contracted for the purchase of 300 tons of air conditioning equipment produced by Airtemp Div., Chrysler Corp. The equipment consists of 10, 30-ton Airtemp packaged air conditioners.

The air conditioners will be used in new Food Fair supermarkets. A pair will be installed in markets currently under construction in Stamford, Conn. and Pearl River, N. Y.

### JOHN WOOD CO. BUYS ANCHOR POST DIV.

John Wood Co. has purchased the Fluid Heat Div. of Anchor Post Products, Inc., Baltimore, whose products include summer air conditioning units and furnaces and conversion burners for both gas and oil.

The transaction covers the machinery, equipment, inventory and plant in Baltimore, and also the plant site and building, machinery and inventory at Red Oak, Iowa.

The company will move ma-

chinery and equipment from Baltimore and integrate it within one of its plant locations at Conshohocken, Pa.; also maintaining the Red Oak facilities to serve western customers.

### STOKES CHANGES NAME

F. J. Stokes Machine Co., Philadelphia, has changed its name to F. J. Stokes Corp. Among its products are vacuum-drying and freeze-drying equipment.

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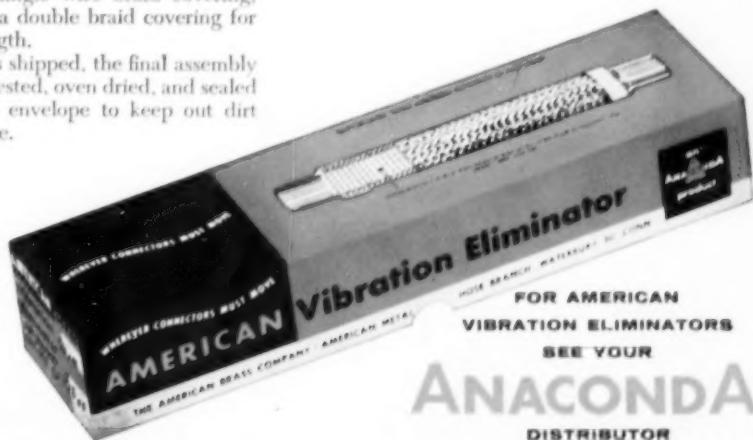
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